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U.S. Food Processing
and Packaging Highlights



U.S. DEPARTMENT OF COMMERCE
Domestic & International Business Administration
Bureau of International Commerce

U.S. FOOD PROCESSING INDUSTRY HIGHLIGHTS . . .

- * LARGEST U.S. INDUSTRY, IN TERMS OF MONEY SPENT BY CONSUMERS. AN ESTIMATED \$185 BILLION WILL BE SPENT FOR FOOD IN 1977 FOR CONSUMPTION AT HOME AND EATING OUT.
 - * THERE ARE OVER 28,000 FOOD PROCESSING ESTABLISHMENTS LOCATED IN THE UNITED STATES THAT HELP TO PRODUCE OVER 650 MILLION MEALS DAILY.
 - * EXPENDITURES FOR NEW PLANTS AND EQUIPMENT ARE EXPECTED TO EXCEED \$4 BILLION IN 1978.
 - * THERE ARE 675 FOOD PROCESSING AND PACKAGING MACHINERY MANUFACTURING FIRMS WHICH PRODUCED ALMOST \$2 BILLION WORTH OF EQUIPMENT IN 1977.
 - * THE UNITED STATES IS THE WORLD'S SECOND LARGEST SUPPLIER OF FOOD PROCESSING AND PACKAGING EQUIPMENT.
 - * IN 1977, THE U.S. EXPORTED FOOD PROCESSING AND PACKAGING MACHINERY VALUED AT APPROXIMATELY \$550 MILLION TO OVER 125 COUNTRIES. OVERSEAS SHIPMENTS ACCOUNTED FOR ROUGHLY 1/3 OF TOTAL DOMESTIC PRODUCTION.

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U.S. Food Processing Industry Highlights

Instant communication, rapid transportation, lower foreign tariffs and other trade barriers, narrowing wage differentials, and higher standards of living have created rising demands everywhere for more products from other countries.

The mass preparation and preservation of foods and beverages is rapidly becoming a major industry in many parts of the globe. Convenience foods, frozen foods, soft drinks and supermarkets are on the increase in many countries. Large industrial food processors are replacing small facilities with integrated in-plant systems that accomplish with a minimum number of workers all operations from sorting ingredients to finishing and packing containers.

Along with this worldwide growth have come the major environmental issues of water and air pollution, which are now problems in densely populated, heavily industrialized nations. In recent years, the rapidly rising costs of energy have placed new requirements on food technologists and machinery designers to develop improved food products and processing systems engineered to conserve energy while increasing production efficiency.

The U.S. manufactures a wide range of processing and packaging machinery and equipment to efficiently and safely preserve foods during transportation from one area to another.

The Food Processing Industry of the United States, probably the largest and most advanced in the world, is responsible for the production, preparation, processing, and packaging of an enormous amount of canned, frozen, dehydrated, and other manufactured foods.

One measure of this industry's size is that various Government and industry sources generally agree that there are about 2,500 separate food processing plants which are involved only in canning and freezing of foods. The annual output of these two industry segments is one billion cases of canned foods and 30.8 billion kilograms of frozen foods. The annual production of the entire Food Processing Industry exceeds \$185 billion. This supplies enough food for over 650 million meals a day (plus snacks) consumed in the United States, in addition to a significant amount of food shipped overseas.

A second measure of the extent of this industry and its production capability was determined by the U.S. Department of Agriculture. They recently reported that the entire agri-business spectrum, (including fresh and processed fruits and vegetables, grains, meat and poultry), produces \$140 billion in products each year and employs on assembly lines

16 million workers - about 20 percent of the entire United States' labor force.

As a consumer of U.S. goods, the industry spends more than \$6 billion a year for new plants, equipment, supplies, and consumable production materials. More than 96 percent of this amount is spent for new processing and packaging machinery and equipment, plus related materials and supplies. There are over 675 separate firms manufacturing food industry machinery; these firms are constantly testing and developing new methods of processing and improving their machinery.

Recent technological developments in food processing and packaging have provided new opportunities which have stimulated the food machinery market. New applications of aseptic processing, microwave food preparation, freeze-drying and vacuum concentrating have significantly increased the variety of food preparation equipment required by processors in recent years. In addition, this new processing technology has resulted in improved machinery and production line design.

The U.S. per capita food consumption level has been increasing annually and includes increased expenditures for food consumed outside the home. As food prices continue to rise, there is a growing demand for convenience and snack-type foods.

During 1977, the "retort pouch" was approved for commercial development by both the Food and Drug Administration and the U.S. Department of Agriculture. This revolutionary development in flexible packaging of food could have considerable impact on the conventional canning and frozen food packaging industry during the 1980's following wide consumer acceptance. Made of complex flexible lamination, the retort pouch is formed-filled-sealed on specialized machinery by heat processes using various approved methods. Retort pouch processing offers extended product shelf life for perishable food and eliminates certain refrigeration requirements. The long-term success of this packaging concept will depend on its popularity and whether research and development can produce more efficient high-speed pouching equipment to hold down the unit cost of producing the flexible retortable pouch.

Several large international corporations are building or planning to build large food processing complexes in various emergent countries to support the growing world demand for processed foods. More countries are coming to realize that improved harvesting, processing, and packaging technology and expanded storage facilities will help prevent the enormous waste of agricultural production in tropical and sub-tropical regions. Concerned international food processors, technologists, and manufacturers of food machinery are joining forces

to help end the world food imbalance by mutual cooperation and technology exchange.

*Irvin Axelrod, Industry Specialist
Transportation and Capital Equipment Division,
U.S. Department of Commerce*

NEW PRODUCTS FOR FOOD PROCESSING
AND PACKAGING

Before the development of commerce, communities were dependent on local hunting, fishing, and agriculture for their food needs. A poor harvest could result in famine and hunger for which there was neither a preventive nor remedy. The growth of world trade made it possible for one region to tap the resources of others, thus softening the effects of local scarcities. The following new products and technologies represent some of the latest developments in the U.S. involving food processing and packaging machinery and equipment available for worldwide export.

Additional information on these products may be obtained directly from the companies. Manufacturers' names and addresses are listed alphabetically at the end of the section. While these firms are believed to be reliable, no responsibility can be assumed by the U.S. Government for the accuracy of the new product descriptions which are based on information supplied by the listed U.S. companies.

We sincerely hope that each Post will disseminate this information to the local business community through all available channels.

FOOD PROCESSING EQUIPMENT

This section includes such unlikely companions as cutters and dicing machines for fruits and vegetables, refining systems for soybeans and corn oil, machines for stripping sardine scales, and even sanitary pumps for handling tomato paste and chocolate syrup. As food processors have become more specialized, the equipment which they employ has grown to be more varied and much more sophisticated.

QUICK FREEZING/PEELING PROCESS -- *Immersion Quick Freeze Systems* recently pioneered a new method of preserving food products by instantaneous

freezing. Products are dipped in a liquid freon bath which freezes them too quickly to cause cell damage. The company says the immersion process

FOOD PROCESSING EQUIPMENT (Cont'd)

preserves and enhances natural food flavor and color and allows zero shrinkage. This system also enables quantity "freeze peeling." After freezing only the skin, the fruits, tomatoes, etc., are then transferred to a warm-water bath where the frozen skins simply peel off. This system is designed for processing operations handling 1,000 to 30,000 lbs (450 to 13,500 kgs) of food per hour. Price is \$50,000 and up.

HIGH-PRODUCTION FOOD CUTTER -- The Model G-A food cutter from *Urschel Laboratories, Inc.*, is engineered to handle a broad range of food products. The unit's sanitary, stainless steel design offers clean cutting action for slicing, dicing, and strip cutting fruits, vegetables and cooked meats. Its special features include high production rate, long operational life, and easy clean-up. The cutter is priced at \$10,000 and up.

HIGH SPEED BREAD OVEN -- Fuel economy, according to *Goglanian Enterprises*, was a main concern in designing this high-speed oven for Arabic pocket bread and Greek Pita Bread. Because baking requires only 35 seconds, as many as 17,000 8-inch (20 cm) loaves can be made in an hour without the excessive loss of moisture and softness caused, the firm notes, by longer baking methods. This unit requires less floor space and fuel than conventional ovens and the modular design permits the addition of extra sections to handle increased production needs, thus preventing obsolescence. Agents and distributors

are sought for this unit which ranges from \$24,000 to \$85,000.

COMPUTERIZED MILKING SYSTEM -- In a totally different area of food processing, a computerized milking system has been developed to simplify the job of the dairy farmer. *Umbaugh Electronics* says its computerized system more closely simulates the nursing action of calves, thus stimulating cows to increase milk production by as much as 10 percent. Data such as the pounds of milk given, the cow's temperature, and the time needed for milking each cow is also recorded. When the milking is completed, the unit is automatically removed from the animal and sanitized. An optional central computer is also available which provides additional information. Sells for \$1,500 and above per stall unit.

COTTAGE CHEESE CURD DRAINER -- Another specialized machine for dairy processors is a "Cottage Cheese Curd Drainer" designed to drain a wide range of curd sizes and textures with minimum damage to the curds or loss of fine particles. Superior to vat draining methods, the firm says, the unit produces up to 18,000 lbs (8,000 kgs) of dry curd per hour. The *Bepex Corporation* prices this convenient, compact Drainer at \$30,000.

PORTABLE A-FRAME CHEESE PRESS -- A recent innovation of interest to cheese processors is a portable A-frame cheese press intended to perform the important task of curd pressing without wasting valuable floor space, work time,

FOOD PROCESSING EQUIPMENT (Cont'd)

and labor. Large, sturdy casters permit the press to be rolled into position for easy loading or storage. Constant, even pressure is applied to each stack of curds by special air cylinders, while bottom pans collect whey and drains. The *Kusel Equipment Company* currently sells this press for \$8,000.

SEA-GOING FISH PROCESSING PLANT -- To feed the growing global population, nations are turning more and more to the rich resources of the sea. For example, to meet the need for a faster, less expensive means of processing the marine harvest, *Maxon*

Marine Industries has developed a sea-going fish processing plant. The sea-based barge works closely with the fishing fleet and eliminates the need for expensive waterfront property. This \$2 million plant will simultaneously handle five 120 ft (36 m) fishing boats. The firm is seeking licensees, distributors, and joint venture builders.

MACHINE STRIPS SCALES FROM SARDINES -- This new equipment from the *General Fish Machine Company* is said to strip scales from sardines without cutting the fish or damaging the skin. This sardine "Scaling Machine" automatically adjusts to the size of each fish (up to 3 oz (84 g) weight), reducing the labor needed to regulate it. The manufacturer says the unit increases productivity (and profits) while producing a high quality finished product. Price is \$9,000.

FILTERMAT DRYER SYSTEM -- The *Damrow Company's* "Filtermat Dryer" is said to combine the efficiency of spray drying and the gentleness of through-circulation bed drying in a single dehydration process for a wide range of products. Difficult products - butter, acid whey, high-sugar materials - and, especially, heat-sensitive products are dried quickly, efficiently, yet gently. Seven models are available, evaporating up to 6,000 lbs (2,700 kgs) of water per hour. Increased efficiency, the firm notes, results in lower fuel bills. Sells from \$250,000 to \$800,000.

PHYSICAL REFINING SYSTEM FOR OILS AND FATS -- A new physical refining system from the *EMI Corporation* is designed to produce stable, high quality oils from soybean, palm, coconut, and corn oils, as well as animal fats. Oils are pretreated to remove heat-degradable materials and other impurities, then refined to reduce fatty acid contents to less than 0.03 percent and eliminate odors. Compared to caustic refining methods, the firm says, physical refining can reduce oil loss by 50 percent, operating costs by 30 percent, and initial capital investments by 20 percent. Price is \$500,000 to \$1,000,000.

SANITARY PROCESSING PUMPS -- Because of major design improvements, the *Abex Corporation's* sanitary processing pumps offer superior operating performance in handling liquid and semi-solid food products. The pumps'

anti-cavitation ports (which prevent partial vacuums forming in fluids during pumping) are larger for an increased flow capacity. In addition, the unit's increased pressure capability (up to 200 psi, or 13.8 kgs per sq cm) will adapt to more demanding applications than ever before. Possible applications include tomato paste, baby foods, puddings, ground meats, cake batters, etc. Price range is \$500 to \$10,000.

SINGLE-TUBE HEAT EXCHANGER --
FranRica Manufacturing, Inc.
has developed a single-tube,

scraped surface, vertical heat exchanger for such food processing functions as heating, cooling, crystallizing, evaporating, etc. This single-tube unit has nearly six times the heating surface (50 sq ft - 4.65 sq m) of a standard single-tube unit. One shaft seal - replacing the 12 needed for multiple tube arrangements - reduces the danger of food contamination and the need for maintenance. Horsepower requirements are approximately half that of multi-tube arrangements, which lowers processing costs. Price is \$70,000 to \$85,000.

PROCESS CONTROL AND INSTRUMENTATION

The increasingly strict quality standards adopted by food processors and the growing complexity of processing technology make the area of process control an important one for the industry. Faster processing speeds and greater accuracy in testing have been the chief aims of recent process control research.

MICROWAVE MOISTURE-MEASURER

FOR FOODS -- One development in recent technology is the use of microwave equipment for measuring the moisture content of food products. One such unit, from *Extech, Ltd.*, offers measurements of 0.1 percent accuracy in only 5 minutes - a great improvement over prior methods requiring several hours. For many industries, faster speeds will mean greater efficiency and closer monitoring of production lines. Processors of cheese, butter, meat, dried coffee, and canned foods are possible end-users. Overseas representatives are sought for this equipment priced at \$8,500.

TESTER UNIT FOR PROTEIN --

Rapid testing is also the hallmark of the *LECO Corporation's "NP-28 Protein Determinator"* which analyzes cereals, grains, feeds, and protein concentrates in as little as seven minutes. The combustion of food samples in oxygen converts organic nitrogen compounds into gaseous, elemental nitrogen which is measured by thermal conductivity. This system, which replaces prior methods requiring long "digestion" time and causing hazardous fumes, provides readings of 3 percent accuracy for homogeneous samples. The unit sells for \$20,000.

PROCESS CONTROL AND
INSTRUMENTATION (Cont'd)

CO₂ ANALYZER FOR BEVERAGES -- For the beer and soft drink industries, the *Taylor Instrument Company's* "CO₂ Analyzer" samples beverages during production to provide a continuous reading of carbonation. A convenient dial shows the readings but the unit can also activate (optional) visual alarms or recording and control instruments. When needed, production corrections can be made immediately to assure product quality and reduce losses. The \$8,000 unit eliminates slow, costly hand-sampling methods.

TESTING FOR MOISTURE IN GRAINS -- *Kay-Ray Inc.*, is marketing a system for monitoring the moisture content of grain and grain by-products. During processing, microwave and gamma radiation is transmitted through the food stuffs. The amount of radiation absorbed indicates the product's water content, density, and temperature. An integral computer combines the readings to find the true percentage of moisture content. Measurements of 0.25 percent accuracy and automatic process control are obtained without touching the food products. Suggested for control of mixing and drying operations, product analysis, wheat tempering, storage of soybeans and grain.

"FEED QUALITY ANALYZER" -- A computerized "Feed Quality Analyzer" from *Neotec Instruments, Inc.*, measures the protein, fiber, fat, and moisture contents of feed or grain

products within seconds. Laboratory accuracy is possible without specially trained personnel during in-line processing or specialized research. Distributors are sought. Price is \$29,500.

EMPTY BOTTLE SCANNER -- The application of advanced electronics, optics, and mechanics provides new levels of quality control in inspection of beverage bottles prior to filling. The "Filtec Inspector" optically superimposes two scanning systems to locate particles through the bottoms of the bottles. Features include -- very smooth handling of bottles and constant, automatic self-monitoring of the system. Suggested for the beer, wine, and soft drink industries. Sold by *Industrial Dynamics Company, Ltd.*, for \$16,000.

TESTER FOR CAN DEFECTS -- Can manufacturers may wish to consider a new system designed by *Borden International, Inc.*, to detect defects in the bodies or flanges of aluminum or steel cans during high-speed production. Each can is examined by one of eight self-contained testing units able to spot air leakage as low as 2cc in 10 seconds (at an atmospheric pressure of 10 psi or 0.7 kg per sq cm). Defective cans are automatically removed from production. Inspection of 1,200 cans per minute is possible. Sells from \$25,000 to \$250,000.

*PACKAGING MACHINERY
AND EQUIPMENT*

Packaging technology must resolve problems which are different for every kind of food processing operation. Dairy and meat products, fruit, vegetables, grain products, fish, beverages, spices - all require different kinds and combinations of volumetric fillers, metering equipment, packaging machines and automatic sealers, quality control technology, etc. The great variety of packaging needs which must be met make this field one of the more innovative areas of research and development.

PLASTIC FILM WRAPPER -- The *Weldotron Corporation* produces a line of equipment using pliable plastic film in packaging. The Model 5900 Wrapper, for instance, can package paper products and other items difficult to contain. Its one-level package flow eliminates the need for rising and falling conveyors. A special harmonic motion moves products swiftly, but gently, through the machine. Price range is \$13,000 to \$17,000.

STRETCH WRAPPER FOR PALLETS -- The Model 4185 Stretch Wrapper wraps and secures pallets loaded with cartons by using controlled mechanical force to keep the plastic wrapping film under constant tension for the tightest possible wrapping. A spiral wrapping motion is preprogrammed for specific packaging tasks. The *Weldotron Corporation* says the unit offers significant savings and operating benefits over alternative palletizing methods. Price, \$9,880.

FORM/FILL/SEAL BAGGER -- *Wright Export, Inc.*, introduces an integrated system for forming, filling, and sealing pouch packages. The "Bagmaker Twin AF System" is suggested for high-speed packaging of coffee, tea, sugar, and similar powders.

The vertical filling mechanism accurately portions and positions the product on heat-sealable film without spillage; three or four sides of the pouch are then sealed at speeds of 140 packages per minute. Sells for \$55,000.

NEW IDEA IN RECLOSEABLE LIDS -- A significant improvement of the recloseable plastic lid has been developed by the *Mc-Kenna Equipment Company, Inc.* The automatic capping machines enclose a thin foil membrane inside the plastic lid before it is placed on the container. The capped container passes under an induction coil which bonds the metal foil to the container's surface preventing leaks and discouraging tampering. Fast, reliable and inexpensive, this capper currently sells for \$70,000.

ECONOMICAL BAGGING MACHINE -- The efficient "Cadet" from *Bodolay Packaging Machinery, Inc.*, forms, fills, and seals up to 50 packages a minute using economical flat roll stock polyethylene, including pre-printed film. The "Cadet" adapts to a range of feeding systems for various products and offers choice of four sealing systems for attractive package styles at very low cost per unit. Sells for \$15,000 and up.

PACKAGING MACHINERY
AND EQUIPMENT (Cont'd)

LIQUID METERING SYSTEM --

The new "Bursa-Fill" system uses a rotary action to accurately measure liquids or semi-solids for packaging in cans, bottles, pouches, plates, etc. According to the *Mateer-Burt Company*, the system is more adaptable to automatic packaging equipment (using rigid or flexible containers) than conventional piston-based fillers. Prepared foods can be metered in amounts from 100 cc to several liters by the computer-controlled drive system. Agents are sought. Price range is \$6,000-\$14,000.

GRAVITY-OPERATED BAGLOADER --

A new machine from the *American Engineering and Design Corporation* uses gravity to fill polybag packages with free-flowing products such as beans, nuts, hard candies, and other foods, as well as small plastic or metal articles. An air blast inflates each polybag, allowing the product to fall through special guides into the package before it is removed for sealing. Four hundred polybags may be stored in the unit and as many as 20 bags processed per minute. The Gravity Bagloader starts at \$550.

WRAPPING SYSTEM FOR TALL PALLET LOADS--- The "Mipac M-120"

is said to be the largest fully automated, in-line stretch wrapper now available. Pallet loads 120 in (305 cm) high can be wrapped at speeds exceeding 90 per hour. Loads are covered with protective

top sheets, securely wrapped, then sealed by a pneumatically assisted pressure bar. Useful in industries employing plastic, glass, or metal containers. Priced by the *Arenco Machine Company, Inc.*, at \$80,000.

CASE-SEALING EQUIPMENT --

The *Bemis Company's* "Challenger" Case Sealer is engineered for packagers employing regular-slotted corrugated (RSC) containers. The unit will automatically seal the tops and bottoms of some 20 cases per minute using hot-melt adhesive. With special adaptations for smaller cases, this speed may be doubled. The "Challenger" features a simplified construction for easy maintenance. Priced from \$9,000 to \$11,000. Agents are sought overseas.

OPEN-HEAD FILLER EQUIPMENT --

A new Open-Head Filler Machine is offered by *Nalbach International, Inc.*, for accurate, efficient filling of rigid containers with chunky foods, granulated materials, or fragile products. Three features are especially stressed by the manufacturer: 1) a filling action moving from the container's bottom to its top; 2) adjustable vibration to provide proper distribution and settling without damage even to very fragile products; 3) machine parts engineered for rapid changing. These features assure safe, accurate canning with production rates of 350 cans per minute. The unit sells for \$27,000.

PACKAGING MACHINERY
AND EQUIPMENT (Cont'd)

LOW-VOLUME VACUUM CAN SEALER -- Most of the equipment described so far is engineered for the needs of large-volume packaging operations. The Universal Vacuum Can Closing Machine from the *Dixie Canner Equipment Company* is designed specifically for low-volume production or laboratory use. This multi-purpose machine will seal round cans in vacuum chambers or under normal atmospheric conditions. Regulated amounts of nitrogen gas may also be added to the can before sealing. Four or more cans per minute can be sealed under normal atmospheric conditions, or two cans when vacuum-packing or adding nitrogen. For use with lightweight metal cans, this unit is priced at \$4,000.

VERSATILE PACKAGING EQUIPMENT -- Simple, inexpensive packaging machinery for a broad range of corrugated or paperboard cartons is produced by *ECONOCORP*. "ECONOSEAL" units are available for sealing flaps on one, two, or three sides of a carton with cold (water-base) glue, hot melt, or hot-air activated sealing methods. Adjustments for different carton sizes are made with a simple crank mechanism; no parts need to be changed or extra time lost away from production. The price range is \$4,000 to \$5,000.

CARTON PACKAGING MACHINE FILLS AND SEALS -- *ECONOCORP* offers a horizontal packaging machine for filling and sealing cartons. The "ECONOSEAL E-SYSTEM" automatically opens folded cartons

in preparation for loading. When the carton is filled, the operator's command causes the unit to close and seal both ends of the carton before recommencing the packaging cycle. For moderate production rates, (1,500 boxes per hour), the "E-SYSTEM" sells for \$6,850.

PRECISION BOTTLING SYSTEM -- Food processors, distilleries, and bottlers of liquid products will be interested in a new system able to fill 400 bottles per minute. The secret of the "Liquid Filler" System is 40 filling heads working simultaneously for maximum production speed. Liquids flow down the inner surface of plastic, glass, or metal containers to avoid overflow and minimize turbulence. At a predetermined fluid level, the flow stops and the filler nozzle is retracted to assure uniform amounts of liquid in every bottle. The *Pneumatic Scale Corporation* sells the unit for \$116,000.

PACKAGER MAKES OWN BAGS -- The "Tubular Bagger" from *Errich International* makes its own bags from tubular polyethylene film. The bags are inflated, filled and sealed to create attractive, air-tight packages. The firm says 1,200 bags can be produced each hour for half the cost of preformed rolls of plastic bags. Models are available with automatic or manual indexing. Price is \$4,550.

BOTTLING SYSTEM FOR PICKLES -- From the *Standard Metal Products Company*, the "Pickle Finisher" provides a gentle,

PACKAGING MACHINERY
AND EQUIPMENT (Cont'd)

reliable way to place cucumbers in their containers with minimum damaging. A timing screw and starwheel synchronize containers with a cam-activated plunger that gently inserts the cucumbers to a predetermined height. This eliminates the problem of cocked bottle tops which slow production. Personnel needs are also reduced. Agents are sought for the "Pickle Finisher" priced at \$30,000.

HIGH-SPEED TAPING MACHINE -- The "Tapeier" is an automatic high-speed machine intended to replace slow and costly hand labor in applying pressure-sensitive tape to packages. The unit mounts on pre-existing machinery as part of automated production lines, or foot switches (or other devices) can make it semi-automatic. Tapes (including double-coated or foam tapes) are applied rapidly and precisely from any plane for a superior end-product. Sold by the Tapeier Corporation for \$2,500 to \$3,500.

AUTOMATIC SPICE LOADER -- Now processors can mechanically pack spices and herbs which previously had to be packaged by hand. The Solbern Corporation's "Spice Filler" loads a broad range of products (including pepper, onion flakes, parsley, whole cloves or chili peppers, etc.) in precisely weighed retail packages. The one high-speed unit accommodates glass jars, lithographed metal cans, and plastic containers without changing parts. Current price is \$35,000.

LAP-SEAL PACKAGING UNIT --

The Oliver Machinery Company introduces a lap-seal packaging machine which can produce 80 packages of food, drugs, paper, etc. per minute. Plastic film is formed into a sealed tube around a continuous flow of products; then a pressure bar separates and seals each product in its own package. Engineered for the rapidly changing needs of low and medium volume manufacturing, this horizontal unit is adjustable during operation for instant corrections or changeovers. Sells for \$25,000.

COMPACT CASE SEALER -- Said

to be the smallest, least expensive case sealer available, the "Little David" automatically seals and adjusts to boxes of mixed sizes produced in low to moderate volume. It applies a single strip of tape to both the top and bottom flaps. The tape is wiped down for a firm seal and the case discharged before the cycle is repeated. Priced by the Loveshaw Corporation at \$5,000.

HIGH-SPEED HORIZONTAL WRAPPER --

A heavy-duty, horizontal wrapping machine offering high-speed performance, is marketed by Doboy Packaging Machinery. The "Super H", which sells for \$35,000, will wrap 400 packages of soft cakes, cookies, candy bars, frozen foods, etc. each minute using almost any heat-sealable material (paper, film, foil, etc.). Its main features include automatic web tension control, infinite phasing adjustment of the infeed chain, and an automatic lubrication system.

PACKAGING MACHINERY
AND EQUIPMENT (Cont'd)

TOTALLY ELECTRONIC BAGGING

UNIT -- According to the *Triangle Package Machinery Company*, the "Pulsomatic II" is the first totally electronic vertical bagging machine which forms, fills, and seals packages as one operation. Solid-state circuitry, simple but precise dial settings, and automatic monitoring of functions are among its features. The unit is elevated and open for easy cleaning. Possible applications include packaging dried or frozen foods, nuts, candy, fruit, sugar, and the like. The price range is \$20,000 to \$140,000.

AUTOMATED CASE LOADER FOR

CANS -- The "Kan King" by *Standard-Knapp* is a heavy-duty, multi-lane unit for loading cans into open-top cases. The "Kan King" separates the cans into four approach lanes and forms them into a packing configuration. The cans are then lifted through a 90 degree arc and gently pushed into the awaiting (manually positioned) carton. Finally, the case is lowered onto a conveyor and discharged ready for sealing. Up to 25 cases per minute may be packed. \$16,500 is the current price.

HIGH-SPEED WEIGHER/BAGGER SYS-

TEM-- The *Union Camp Corporation* has produced a weighing system for accurate, high-speed bagging of free-flowing dry products. Multiple feeders with load cell weight sensors function at speeds of 20 bags (50 kgs - 110 lbs) per minute, accurate to within 40 g. Simple to install, easy to main-

tain and operate, the system is suggested for packaging sugar, rice, peanuts, etc. Price range is \$9,000 to \$12,000.

PALLETERIZER FOR STEADY PRODUCT

FLOW -- The *Kusel Equipment Company* offers an automatic case palletizer system selling for \$30,000. Custom-built to specific pallet and carton sizes, the unit palletizes a continuous flow of cartons or bags moving at a rate of 35 feet (10.5 m) per minute. Cartons are positioned and gently compressed into a tight, stable layer. The process is repeated until a given number of layers is reached, then the pallet is removed for storage or shipping. The machine is ideal for canners, bottlers, and other packagers using cartons.

SYSTEM FORMS SMALL BOXES --

The "Rap-A-Mat", from *Stone Packaging Systems*, is designed to form and seal very small corrugated boxes for food products which are cartoned, bagged or bottled. The firm says the machine's efficiency saves both labor and materials. Since the boxes are formed without support from the materials inside, partially filled boxes or cartons containing fragile products may be safely sealed without loss of stacking strength. The "Rap-A-Mat" sells for \$30,000 to \$40,000 FOB Chicago.

PACKAGING UNIT WITH TWIN FIL-

TERS -- A vertical "Twin Tube Packaging Machine" from the *General Packaging Equipment Company* is designed to form,

PACKAGING MACHINERY
AND EQUIPMENT (Cont'd)

fill, and seal pillow-style bags at twice the rate of single-tube units. Two independently operated volumetric fillers will feed any free-flowing product (grains, beans, sugar, etc.) into bags which the machine forms from roll stock polyethylene. The bags are sealed and exit at speeds as high as 100 per minute (depending on the product and the filling weight). More compact and economical, the firm says, than two single-tube machines, the packager sells from \$28,000.

SHRINK-FILM WRAPPER -- The "Tamp-Pack", produced by *Tampco, Inc.*, offers efficient packaging using the shrink-film wrapping method. To wrap safely any of a variety of packages (heavy, bulky, fragile, large, or small), upper and lower rolls of packaging film are precisely measured to cover a product, sealed together by a hot knife sealing bar, then shrunk in a controlled-temperature tunnel for a tight, accurate fit. Up to 25 packages per minute are possible. Features include a powered film-feeding system and uniform tunnel temperatures (assured by a special turbulent air action). The machine sells for \$12,000.

MULTI-PURPOSE CASE-LOADER -- The "CELSA" packaging machine combines three functions in one unit. It erects flattened corrugated cases, loads them with cans, and seals the finished package with hot-melt glue. Though less than 2 meters long, the *Heisler Ma-*

chine and Tool Company says, the "CELSA" will process up to 20 cases per minute. It also adjusts for packages of different sizes and alternative packing patterns in as little as 15 minutes. Two or three units can be run by a single operator. Price is \$35,000 to \$70,000.

INTEGRATED PACKAGING EQUIPMENT -- The *Cozzoli Machine Company* manufactures a line of semi- and fully automatic packaging machines. Equipment is available for filling, washing, inserting stoppers and screw caps, loading vials on trays, etc. The firm's exclusive syringe and slide valve combination, (found on many machines) permits accurate volumetric filling of a broad range of products. Complete, integrated packaging systems and high-speed units are also available. All equipment is shipped pre-assembled and ready for installation. These products are priced from \$400 to \$40,000.

CUSTOM-BUILT PACKING MACHINERY -- *Tele-Sonic/Trescott* says that the construction methods and designs used in its custom-built packaging machinery are the result of years of manufacturing experience, months of special research, and long periods of field testing. Automatic or semi-automatic equipment can be made for the special needs of dairies, bakeries, plants processing fresh or frozen foods, and other industries. The firm says low price and superior quality are its hallmarks.

PACKAGING MACHINERY
AND EQUIPMENT (Cont'd)

ASEPTIC PACKAGING SYSTEM -- Extended shelf life for perishable foodstuffs without refrigeration is offered by the Model 5000 Asepak System from *General Films, Inc.* This high-speed, low-cost system includes filling and packaging equipment and flexible bags for packaging sterile, perishable foods. The unit can also be used for packaging in nitrogen or other gases. Ideal, the firm says, for most foods, chemicals, drugs, and many other products, the entire system sells for approximately \$125,000.

AUTOMATIC WEB GUIDING EQUIPMENT --- The *Fife Corporation* manufactures automatic guiding systems which control the lateral position of continuous materials such as paper, foil, or packaging films used in many processing lines. To meet the specific requirements of the purchaser, each system is constructed from a broad selection of basic units founded on 36 years of manufacturing experience. These self-contained systems can improve production speeds and product quality, the firm says, while reducing wasted material. Suggested for printing, web cloth and strip processing, etc., these products sell from \$2,000 to \$5,000.

BOX SEALER SYSTEM -- An inexpensive, semi-automatic system is now available for erecting and sealing regular or half-slotted corrugated cases. The *International Paper Company's* "Cub 100" is designed for growing packaging operations

not yet requiring a fully automated system. The operator squares the box and introduces it into the machine, which then applies hot-melt glue to the flaps, folds them into position, and seals the case. Formed and bottom-sealed cases are discharged ready for packaging fruit, vegetables, and the like. The simple, mechanical operation works without air-pressure. Current price is \$12,500.

UNIT FORMS/"WICKETS" POLYBAGS -- Capable of 300 operating cycles each minute, the Model 408-30 Polybag Machine from *Sheldahl, Inc.*, offers a fast, quiet means of converting flexible film into bag containers for a wide range of end-users. Adaptable to specific polybag requirements, the unit groups the finished bags on U-shaped metal "wickets" for easy handling by the end-user during production. Sells from \$40,000 to \$80,000.

DIES AND TOOLING FOR CAN-FORMING -- The *Service Tool Die and Manufacturing Company* offers a line of custom-built manufacturing dies and tooling for companies manufacturing metal cans for foods or beverages. Both primary dies and secondary "rescroll" dies are made from high quality carbide and tool steel for maximum resistance to wear. Custom-designs may include trade names and other engravings if desired. In addition, the firm says, the careful design of dies for both the bodies and ends of cans prevents unnecessary waste of canning materials.

PACKAGING MACHINERY
AND EQUIPMENT (Cont'd)

UNIT "SAVES" PRODUCTS FROM BAD PACKAGES -- Interestingly enough, there is at least one machine which opens, rather than seals, packages. The "Product Saver" is engineered to reclaim, from faulty or rejected packages, 99 percent of granular, flake, liquid, or solid contents (i.e. tea,

coffee, grain, etc.) Each "Product Saver" is custom-built to open packages of any desired material 10 to 30 times faster than hand-labor methods. All units are mounted on casters for maximum maneuverability. Price is \$8,000 to \$15,000. Distributor inquiries are welcomed by the firm, *Product Saver*.

LABELING, CODING AND IMPRINTING EQUIPMENT

Coding and imprinting processes are so important in packaging and so well developed as a technology that they deserve to be considered separately. Some of the latest developments in this area are detailed below.

LABELING MACHINE FOR CANS -- *Mateer-Burt* also manufactures heavy-duty equipment for applying wrap-around or "spot" labels to cylindrical containers of all kinds. This labeler's capacity has been recently increased 40 percent without increasing its height and will handle containers based on either metric or British Imperial measurements. Other improvements provide increased speed and efficiency, decreased maintenance problems. Agents are sought. Price range is \$5,000 to \$20,000.

LOW-PRICE POLYBAG IMPRINTER -- *From the Markem Corporation's*, a new "Polybag Imprinter", offers sharp, inexpensive printing for packagers using polybags. The unit prints changeable price and date information directly on bread or bun bags with instantly drying ink. Easily mounted on existing bagging equipment

(such as automatic bagging lines in bakeries), the Imprinter is capable of 85 printing cycles per minute. Price is \$3,100 FOB Keene, New Hampshire.

PACKING CASE IMPRINTER -- The Series 350 Coder from the *Kiwi Coders Corporation* imprints the sides, bottoms, or tops of corrugated cases or multi-wall bags. The flexible printing mechanism can be reset between packages for registered prints or allowed to turn continuously for less precisely positioned imprinting. The purchaser can choose among three kinds of type and two inking systems for his specific needs. Price is \$300 to \$500. The company seeks agents currently representing U.S. machinery manufacturers.

SEMI-AUTOMATIC LABELER -- The "307 Pony Pinto" is a semi-automatic labeling machine using adhesive or pressure-

*LABELING, CODING AND
IMPRINTING EQUIPMENT (Cont'd)*

sensitive labels. Even at speeds of 60 labels per minute, the unit's rugged micrometer mounting offers exact dependable placement of labels.

NJM, Inc., says that the labeler's solid-state electronics and modular construction assure long life and operational reliability. The price range is \$5,200 to \$5,900. Agents and representatives are sought.

IN-LINE IMPRINTING OF CUT/ROLL LABELS -- The "Thorobred Pony 350" features in-line imprinting of cut or roll labels just prior to application. It is said to be capable of continuous operating runs of 300 labels per minute and surges of 350 labels. Roll-on labeling assures smooth, precise registration on glass or plastic containers or any stable packages of round or slightly tapered shape. Sells from \$41,000 to \$43,000. *NJM, Inc.*, seeks agents and representatives.

HAND-HELD MARKING TOOLS -- Packagers seeking inexpensive imprinting equipment are referred to a line of fast, efficient hand-held marking tools made by the *Algene Marking Equipment Company*. Designed for containers of all sizes and shapes, these instruments include in-line printers for prefilled packing cases which can print four sides of containers at a speed of 47 cases per minute. Presses are also available for imprinting one or two colors on corrugated cartons. These quality tools are priced from \$24 to \$20,000.

ROLL-FED LABELERS -- *B & H Manufacturing* states that its roll-fed labeling machines will do the job of pressure-sensitive labels, often for one fourth the cost. Roll-stock is automatically fed into the machine, electronically registered with date codes, product numbers, etc., then die-cut to the required shape and applied to containers with hot-melt adhesive. As many as 600 labels per minute can be applied to round, square, rectangular, or oval containers of glass, metal, or plastic. Suggested for breweries, dairy plants, and others. Sells from \$60,000 to \$120,000. The firm seeks overseas agents with the appropriate background and service facilities.

HOT-STAMP IMPRINTER -- A self-contained, hot-stamping machine from the *Apex Machine Company* can be used to transfer trade names, descriptive information, etc. directly onto many products and packages. The machine is air-operated and engineered for integration with existing packaging production lines. Features include automatic foil feed, thermostatic heat control, plug-in components, and optional double safety switches. Price is \$2,000.

HIGH-SPEED BOTTOM-CODER -- Said to be the fastest unit of its kind available, the "Markocoder" from *Adolph Gottscho, Inc.*, can code and date up to 450 containers per minute in regular production lines. A simple, calibrated adjustment

*LABELING, CODING AND
IMPRINTING EQUIPMENT (Cont'd)*

of this bottom coder's electric eye provides precise, repeatable registration on bottles, jars, cans, tubs, and rigid containers of all kinds. Price range is \$3,000 to \$4,000.

ROLL-LEAF IMPRINTER -- *Adolph Gottscho, Inc.*, also produces a high-speed roll leaf imprinter for food and candy packagers using continuous, high-speed wrapping film. The "Wrapa-printa 2001/Casette" can handle 2,000-foot (600 meters) rolls of leaf - about twice the capacity of standard printers - for increased production runs. Restocking requires only 12 seconds using cassettes pre-loaded with leaf, and information to be printed can be varied, the firm says, in as little as 30 seconds. Price is \$1,250 to \$1,700.

CONTINUOUS PRINTING FOR FLAT STOCK MATERIALS -- The new "Economark" is a simple unit designed for continuous printing of flat stock materials such as packaging web, wallboard, paper, foil, plastic, wood, glass, etc. Driven by direct contact with the moving

materials being printed, the "Economark" gives repeated printings at speeds of 500 feet (150 m) per minute. The barometric ink system provides a consistent, precise flow of ink and is easily visible for quick inspections. Operating adjustments, changes of ink or printing type, are simple, requiring only seconds to perform. The uncomplicated design and rugged, one-piece frame offers trouble-free operation according to *Matthews International Corporation*.

ULTRAVIOLET DRYER LAMP -- The *Fusion Systems Corporation* recently engineered an ultraviolet lamp for drying ink or wet coatings which works without the electrodes of conventional lamps. This innovation makes possible a cool lamp operation without shutters or other moving parts and offers an extended bulb life of up to 6,000 hours. Energy and space consumption, the firm says, are much less than that of conventional lamps. Suggested for can manufacturers, printers, makers of floor tiles, etc. Price range is \$5,000 to \$100,000.

*MATERIALS HANDLING, REFRIGERATION,
AND SERVICES*

The various equipment described in the preceding sections, though representative of the broad range of new U.S. food processing technology, by no means exhausts the field. Another important sector, present at almost every stage of processing, is the materials handling equipment - conveyors, elevators, feeder machines, and the like.

AIR-JET CONVEYOR BELT -- An interesting example of innovative technology in this area

is the new "Air Conveyor" which employs small air jets to move lightweight packages up to 2 lbs

MATERIALS HANDLING, REFRIGERATION,
AND SERVICES (Cont'd)

in weight (0.9 kg). Packages float on a film of air which cushions them against damage from crushing, scraping, or contact with moving machine parts. Even fragile products, according to the *Jet Stream Systems Company*, are safe whether on straight or curved conveyor lines. Sells from \$1,000 to \$1,000,000.

IMPROVED DESIGN IN CONVEYOR CHAINS -- For heavier products, *Intralox, Inc.*, has developed an important improvement in conventional conveyor chains. The firm's modified, linked conveyor belting provides a smooth, non-metallic, ribbed surface that meshes carefully with finger-like extensions of a specially designed transfer plate. Products slide smoothly over the usual "gap" between transfer plate and chain without tipping or blocking the flow of products. The chain is made of low-friction plastic which, though rugged, is gentle to products and easy to clean. Available in any width or length. Priced at \$12 per sq ft (.09 sq m).

MASS CUP ELEVATOR -- The *Sardee Corporation's* "mass cup elevator" will lift large numbers of shallow containers to any height. According to the firm, this unit's quiet operation can elevate up to 2,400 containers per minute with minimum danger of scratches or dents. Requires little maintenance. The price range is \$18,000 to \$26,000.

PLASTIC BOTTLES ARRANGED FOR PRODUCTION -- Plastic containers

have become such an important part of packaging that many modern machines are designed specifically to handle them. The "Pacesetter", for instance, is engineered to lift any kind of plastic bottles from disorganized batches and place them upright on filling line conveyors. The *Pace Packaging Company* says that as many as 600 bottles of any shape or size can be handled each minute. Asymmetrical bottles are ordered with uniform orientation. This compact unit sells from \$30,000 to \$60,000. Agents and representatives are sought in South America, Africa, Asia.

UNIT UPRIGHTS CANS -- A high-speed "Upender" Machine from the *FECO* firm lifts cans and other tubular containers (made from plastic or composite fibers) from a horizontal to an upright position for feeding into sealing machinery. The stainless steel contact surfaces eliminate abrasion and will not stain cans. The "Upender" features a central lubricating system and fixed-speed fractional horsepower drive. Price, \$3,500.

PRODUCTION LINE CAN INVERTER -- The *Sardee Corporation* is introducing a system which receives empty cans discharged upside down from a washer and inverts them to their proper position. A reverse air-current intake secures the cans on the conveyor belt during the inversion so that as many as 3,000 cans per minute may be handled. The price ranges from \$25,000 to \$40,000.

*MATERIALS HANDLING, REFRIGERATION,
AND SERVICES (Cont'd)*

MATERIALS HANDLING SYSTEMS --

The *United Conveyor Corporation* specializes in the construction of a broad spectrum of material handling systems for the food, dairy, and beverage industries. Built from stainless steel, aluminum, and other sturdy materials, these systems are intended for long service with little or no maintenance. Among the custom-designed systems offered are conveyors made with special tracks for dairies using plastic containers. Other systems are available for containers of practically any kind. Price range is \$100 to \$500. Agents are sought.

SPEED CONTROL FOR DC MOTORS --

An efficient production line requires that every processing unit, packaging machine, and conveyor belt be synchronized for smooth product handling. *Doerr Electric's* "Stedi-Drive" control unit allows the processor to regulate the operating speed of any equipment powered by a DC motor to within 2 percent control accuracy. The "Stedi-Drive" includes a modular design for simplified repairs and servicing, and is constructed from the latest (less expensive) components. Price range is \$80 to \$200.

The task of handling products and packages does not end at the factory. Safe, sanitary, and efficient methods of transportation are necessary for proper distribution of prepared food products.

DUCTLESS AIR-DISTRIBUTION

SYSTEM -- One U.S. firm has developed an improved air circulation system for refrigerated transport vehicles. "Circ-U-Air" uses high velocity air circulation to eliminate the need for finger ducts which tear easily, collect dirt, and take up valuable cargo space. According to the *Circ-U-Air Company*, the system has demonstrated the ability to maintain precise temperatures and uniform air circulation throughout the transport cabins even over long transporting distances. Top-freezing of food products is also largely eliminated. The unit sells from \$185 to \$240. Distributors are sought worldwide.

ALARM SYSTEM FOR FREEZER FAILURES --

In less than one minute, says *Symtec, Inc.*, a business or household can become protected against the costly loss of frozen foods through accidental thawing. "Freezer Guard" is a simple electronic alarm system designed to sound when a freezer begins to thaw because of power shortages, malfunctioning fuses or compressor, improper temperature settings, or other causes. Inexpensive, easy to install, this solid-state unit retails at \$14.95.

INDUSTRIAL WASHING SYSTEM --

A new washing system from the *Schlueter Company* offers a processing plant's sanitation department the flexibility it needs to clean a variety of equipment. Three modes are

MATERIALS HANDLING, REFRIGERATION,
AND SERVICES (Cont'd)

possible. For "Cleaning out of place (COP)", loose parts, valves, fittings, etc., are placed in the unit's wash tank and thoroughly sprayed with recirculating cleaning fluids. If desired, a special valve can divert the cleaning fluids into the plant's processing pipes, vats, etc., for "Cleaning in Place (CIP)." Finally, a hose attachment makes it possible to clean the exteriors of equipment with a high fluid pressure of 700 psi (48.5 kg per cubic cm). Suggested for dairies, breweries, canning operations, and the like. Agents' inquiries are invited.

COMPACT ICE CREAM DISPENSER -- New ideas are also being developed to aid small, consumer service operations such as restaurants, coffee shops, snack bars, etc. For instance, *Glacier Products, Inc.*, is marketing an automatic ice cream dispenser only 43 cm (13 in) wide which fits easily on any available counter. Its low energy consumption and the

fact that it needs no plumbing or special wiring for installation make it ideal for small businesses. Eighteen liters (5 gals) of ice cream, frozen yogurt, drinks such as daiquiries, or frozen deserts can be dispensed per hour. Lightweight, portable, yet rugged and reliable, the *Glacier Ice Cream Machine* sells from \$1,000 to \$2,000. Distributors are sought.

COFFEE FROM A "TEA BAG" -- Restaurants, coffee shops, snack bars, and private individuals, will be interested in "Coffee Bags" from the *Morning Treat Coffee Company*. This novel product looks and works like an ordinary tea bag but produces coffee with a taste, the company says, as good as that of regular brew methods. "Coffee Bags" contain fresh ground roast coffee (regular or decaffeinated) for simple, cup-by-cup brewing. More convenient and economical, the firm notes, than drip-brew methods, this product sells from \$23 to \$30 a case.

SPECIAL THANKS

The preceding new product information was obtained through the cooperation of the: *Dairy and Food Industries Supply Association, Inc.*; *Food Processing Machinery and Supplies Association*; and the *Packaging Machinery Manufacturers Institute*.

Manufacturers of products in the preceding text are listed alphabetically as follows.

ADDRESSES OF FIRMS

1. *ABEX CORPORATION*, Waukesha Foundry Division, Dept. CN, James S. Dahlke, 1300 Lincoln Avenue, Waukesha, Wisconsin 53186 U.S.A.
2. *ADOLPH GOTTSCHO, INC.*, Dept. CN, Melville Morris, 835 Lehigh Avenue, Union, New Jersey 07083 U.S.A.
3. *ALGENE MARKING EQUIPMENT COMPANY, INC.*, Dept. CN, Milton Mann, 232 Palisade Avenue, Garfield, New Jersey 07026 U.S.A.
4. *AMERICAN ENGINEERING AND DESIGN CORPORATION*, Dept. CN, Gerald Jacobs, 173 Cross Road, Industrial Park, Waterford, Connecticut 06385 U.S.A.
5. *APEX MACHINE COMPANY*, Dept. CN, A. Robert Coningsby, 3000 N.E. 12th Terrace, Ft. Lauderdale, Florida 33334 U.S.A.
6. *ARENCO MACHINE COMPANY, INC.*, Dept. CN, John Mueller, 500 Hollister Road, Teterboro, New Jersey 07608 U.S.A.
7. *B&H MANUFACTURING*, Dept. CN, Wolfgang W. Hoffmann, 3461 Roeding Road, Ceres, California 95307 U.S.A.
8. *BEMIS COMPANY, INC.*, Dept. CN, Packaging Service Division, 315 27th Avenue, N.E., Minneapolis, Minnesota 55418 U.S.A.
9. *BEPEX CORPORATION*, Rietz Division, Dept. CN, John Lennox, P.O. Box 880, 150 Todd Road, Santa Rosa, California 95402 U.S.A.
10. *BODOLAY PACKAGING MACHINERY, INC.*, Dept. CN, J.S. Bodolay, P.O. Box 406, Lakeland, Florida 33802 U.S.A.
11. *BORDEN INTERNATIONAL, INC.*, Dept. CN, Donald Dexter, 26 Center Street, Randolph, New York 14772 U.S.A.
12. *CIRC-U-AIR*, Dept. CN, Ray Hall, 4232 Venard Rd., Downers Grove, Illinois 60515 U.S.A.
13. *COZZOLI MACHINE COMPANY*, Dept. CN, George A. Popper, 401 East 3rd Street, Plainfield, New Jersey 07060 U.S.A.
14. *DAMROW COMPANY*, Division of DEC International, Inc., Dept. CN, Fred N. Peterson, 196 Western Avenue, Fond du Lac, Wisconsin 54935 U.S.A.
15. *DIXIE CANNER EQUIPMENT COMPANY*, Dept. CN, W.T. Stapleton, Sr., P.O. Box 1348, Athens, Georgia 30601 U.S.A.
16. *DOBOY PACKAGING MACHINERY*, Domain Industries, Inc., Dept. CN, Luis Sanchez, 869 S. Knowles Avenue, New Richmond, Wisconsin 54017 U.S.A.

17. *DOERR ELECTRIC COMPANY*, Dept. CN, Patrick J. Chudecke, Box 67, Cedarburg, Wisconsin 53012 U.S.A.
18. *EMI CORPORATION*, Dept. CN, Arnold M. Gavin, 3166 Des Plaines Avenue, Des Plaines, Illinois 60018 U.S.A.
19. *ECONOCORP*, Dept. CN, Richard G. Lee, 71 Fourth Avenue, Needham Heights, Massachusetts 02194 U.S.A.
20. *ERRICH INTERNATIONAL CORPORATION*, Dept. CN, Irving Litt, 721 Broadway, New York, New York 10003 U.S.A.
21. *EXTECH, LTD.*, Dept. CN, Gordon Fromm, 5319 S.W. Westgate Drive, Portland, Oregon 97221 U.S.A.
22. *FECO*, Dept. CN, James D. Anderson, 5855 Grant Avenue, Cleveland, Ohio 44105 U.S.A.
23. *FIFE CORPORATION*, Dept. CN, Donald Paulsen, Box 26508, Oklahoma City, Oklahoma 73126 U.S.A.
24. *FRANRICA MANUFACTURING, INC.*, Dept. CN, Paul Brocker, P.O. Box 879, Stockton, California 95201 U.S.A.
25. *FUSION SYSTEMS CORPORATION*, Dept. CN, Dr. M. Greenblatt, 11810 Parklawn Drive, Rockville, Maryland 20852 U.S.A.
26. *GENERAL FILMS, INC.*, Dept. CN, Roy J. Weikert, 2000 Schlater Drive, Sidney, Ohio 45365 U.S.A.
27. *GENERAL FISH MACHINE COMPANY, INC.*, Dept. CN, N.C. Brophy, 105 Froundry Street, Wakefield, Massachusetts U.S.A.
28. *GENERAL PACKAGING MACHINE COMPANY*, Dept. CN, Richard H. Grimes, P.O. Box 19525, Houston, Texas 77024 U.S.A.
29. *GLACIER PRODUCTS, INC.*, Dept. CN, V. Robert Erickson, 8015 S.W. Oleson Road, Portland, Oregon 97223 U.S.A.
30. *GOGLANIAN ENTERPRISES*, Dept. CN, John Goglanian, 1583 Monrovia Avenue, Newport Beach, California 92663 U.S.A.
31. *HEISLER MACHINE AND TOOL COMPANY*, Dept. CN, Roger A. Heisler, 224 Passaic Avenue, Fairfield, New Jersey 07006 U.S.A.
32. *IMMERSION QUICK FREEZE SYSTEM*, Dept. CN, Jim Decker, P.O. Box 3252, Modesto, California 95353 U.S.A.
33. *INDUSTRIAL DYNAMICS COMPANY, LTD.*, Dept. CN, Donald T. Flood, 2927 Lomita Boulevard, Torrance, California 90509 U.S.A.
34. *INTERNATIONAL PAPER COMPANY*, Dept. CN, C.D. Fredette, 17800 State Road 9, Miami, Florida 33162 U.S.A.
35. *INTRALOX, INC.*, Dept. CN, Monte L. Kewley, P.O. Box 50699, New Orleans, Louisiana 70150 U.S.A.

36. *JETSTREAM SYSTEMS COMPANY*, Dept. CN, Warren P. Landon, P.O. Box 4177, 3486 Investment Boulevard, Hayward, California 94540 U.S.A.
37. *KAY-RAY, INC.*, Dept. CN, Gary P. Lewis, 516 W. Campus Drive, Arlington, Heights, Illinois 60004 U.S.A.
38. *KIWI CODERS CORPORATION*, Dept. CN, David H. Kuh, 4027 North Kedzie, Chicago, Illinois 60618 U.S.A.
39. *KUSEL EQUIPMENT COMPANY*, Dept. CN, Russell Cottrell, P.O. Box 87, Watertown, Wisconsin 53094 U.S.A.
40. *LECO CORPORATION*, Dept. CN, Allen W. Hawes, 3000 Lakeview Avenue, St. Joseph, Michigan 49085 U.S.A.
41. *LOVE SHAW CORPORATION*, Dept. CN, Peter J. Hakim, 61 E. Industry Court, Deer Park, New York 11729 U.S.A.
42. *MCKENNA EQUIPMENT COMPANY, INC.*, Dept. CN, Omar Lennen, #9 Capper Drive, Pacific, Missouri 63069 U.S.A.
43. *MARKE M CORPORATION*, Dept. CN, Fred Rawlings, 150 Congress Street, Keene, New Hampshire 03431 U.S.A.
44. *MATEER-BURT COMPANY*, Dept. CN, Charles A. Sauerbrey, 436 Devon Park Drive, P.O. Box 405, Wayne, Pennsylvania 19087 U.S.A.
45. *MATTHEWS INTERNATIONAL CORPORATION*, Dept. CN, F.J. Sarknas, P.O. Box 4999, Penn Circle East, Pittsburgh, Pennsylvania 15206 U.S.A.
46. *MAXON MARINE INDUSTRIES, INC.*, Dept. CN, Roger H. Zion, P.O. Box 349, Tell City, Indiana 47586 U.S.A.
47. *MORNING TREAT COFFEE COMPANY, INC.*, Dept. CN, Karen Cossman, 4535 Choctaw Drive, P.O. Box 66037, Baton Rouge, Louisiana 70896 U.S.A.
48. *NJM, INC.*, Dept. CN, John H. Tobin, 16th Street and Willow Avenue, Hoboken, New Jersey 07030 U.S.A.
49. *NALBACH INTERNATIONAL, INC.*, Dept. CN, L.G. Weston, 6139 W. Ogden Avenue, Chicago, Illinois 60650 U.S.A.
50. *NEOTEC INSTRUMENTS, INC.*, Dept. CN, Frank Carpenter, 2341 Linden Lane, Silver Spring, Maryland 20910 U.S.A.
51. *OLIVER MACHINERY COMPANY*, Dept. CN, Walter Kayser, 445 Sixth Street, N.W., Grand Rapids, Michigan 49503 U.S.A.
52. *PACE PACKAGING CORPORATION*, Dept. CN, Robert J. Krooss, 88 Clinton Road, Fairfield, New Jersey 07006 U.S.A.
53. *PNEUMATIC SCALE CORPORATION*, Dept. CN, Arbey Feigenson, 65 Newport Avenue, Quincy, Massachusetts 02171 U.S.A.

54. *PRODUCT SAVER*, Dept. CN, Louis R. Maxwell, 4232 Venard Road, Downers Grove, Illinois 60515 U.S.A.
55. *SARDEE CORPORATION*, Dept. CN, Steven R. Sarovich, 11900 S. Laramie Avenue, Alsip, Illinois 60658 U.S.A.
56. *SCHLUETER COMPANY*, Dept. CN, R.E. Gerner, P.O. Box 548, Janesville, Wisconsin 53545 U.S.A.
57. *SERVICE TOOL DIE AND MANUFACTURING COMPANY*, Dept. CN, Thomas Wichhart, 160 King Street, Elk Grove Village, Illinois 60007 U.S.A.
58. *SHELDahl, INC.*, Dept. CN, Anthony W. Cline, 231 Ferris Avenue, E. Providence, Rhode Island 02916 U.S.A.
59. *SOLBERN CORPORATION*, Dept. CN, Lee M. Clegg, 8 Kulick Road, Fairfield, New Jersey 07006 U.S.A.
60. *STANDARD-KNAPP*, Division of Emhart Industries, Dept. CN, Arthur A. Tanner, 127 Main Street, Portland, Connecticut 06480 U.S.A.
61. *STANDARD METAL PRODUCTS COMPANY*, Dept. CN, Henry Schmidt, 3700 N. River Road, Franklin Park, Illinois 60131 U.S.A.
62. *STONE PACKAGING SYSTEM*, Division of Stone Container Corporation, Dept. CN, George Moyer, 1401 11th Street, Waukegan, Illinois U.S.A.
63. *SYMTEC, INC.*, Dept. CN, Robert B. Cain, P.O. Box 462, Farmington, Mississippi 48024 U.S.A.
64. *TAMPco, INC.*, Dept. CN, Earl Whitehead, 3015 4th Avenue, Tampa, Florida 33605 U.S.A.
65. *TAPELER CORPORATION*, Dept. CN, G.H. Tucker, 63 Fountain Street, Framingham, Massachusetts 01701 U.S.A.
66. *TAYLOR INSTRUMENT COMPANY*, Dept. CN, John Waples, 95 Ames Street, Rochester, New York 14601 U.S.A.
67. *TELE-SONIC/TRESCOTT*, Division of Empsco, Dept. CN, Bernard Katz, 18-35 38th Street, Long Island City, New York 11105
68. *TRIANGLE PACKAGE MACHINERY COMPANY*, Dept. CN, William H. Zuse, 6655 W. Diversey Avenue, Chicago, Illinois 60635 U.S.A.
69. *UMBAUGH ELECTRONICS*, Dept. CN, Sandra L. Chiselbrook, 737 29th Street, Boulder, Colorado 80303 U.S.A.
70. *UNION CAMP CORPORATION*, Dept. CN, Douglas R. Smith, 1 Terminal Road, Lyndhurst, New Jersey 07071 U.S.A.
71. *UNITED CONVEYOR CORPORATION*, Dept. CN, Robert L. Mooney, 201 North Maple Avenue, P.O. Box 477, Sanford, Florida 32771 U.S.A.
72. *URSCHEL LABORATORIES, INC.*, Dept. CN, George Pilgrim, 2503 Calumet Road, Valparaiso, Indiana 46383 U.S.A.

73. *WELDOTRON CORPORATION*, Dept. CN, J. Herens, 1532 S. Washington Avenue, Piscataway, New Jersey 08854 U.S.A.

74. *WRIGHT EXPORT, INC.*, Dept. CN, B.W. Thomas, P.O. Box 3811, Durham, North Carolina 27702 U.S.A.

* *

"A COMPLETE COURSE IN CANNING"

Just off the press is the new 10th edition of "A Complete Course in Canning", published by The Canning Trade, Inc.

This technical reference and textbook is written for Students of Food Technology, Food Plant Managers, Products Research and Development Specialists, Food Equipment Manufacturers and Salesmen, Brokers and Food Industry Suppliers.

This 755-page text brings together many subjects never before published in one book. The objective was to create an inclusive text, covering the major phases of processing, which could be used as a textbook for food technology courses. The book was also designed as a reference manual for food processors and features processing times, temperatures, and procedures.

This new edition is vastly expanded over previous editions. It has new sections dealing with new products, and covering major aspects of food processing through the warehousing of the finished product. The first chapter alone - with 270 pages of general instructions - could be a book in itself. Its contents require 5 pages to list and include such items as Plant Location; Building a Plant; Steam Requirements; Energy Conservation; Sanitation; Waste Disposal; Food Laws, Regulations and Standards; Nutritional Labeling; Microbiology of Canned Foods; Containers; Quality Control; Canning Operations; Sterilization; Warehousing; and Spoilage.

Other chapters include: Ingredients; Canning of Vegetables; Canning of Fruits; Canning of Juices and Fruit Drinks; Canning of Marine Products; Canning of Dry Pack Products; Canning of Meat Products; Canning of Soups; Jellies, Jams, and Related Products; Pickles; Mayonnaise and Salad Dressing Products. Recent advances in Food Technological method are also featured.

"A Complete Course in Canning" sells for \$45. Write: The Canning Trade, Inc., Dept. CN, 2619 Maryland Avenue, Baltimore, Maryland 21218 U.S.A.

FOOD PROCESSING AND PACKAGING EQUIPMENT

U. S. Trade Associations and Journals

1. Trade Associations

AIR-CONDITIONING AND REFRIGERATION INSTITUTE
1815 N. Fort Myer Drive
Arlington, Virginia 22209
Gurdon R. Munger, President
& Chief Ex.
703/524-8800

AMERICAN MEAT INSTITUTE
1600 N. Wilson Blvd.
Arlington, Virginia 22209
Richard Lyng, President
703/841-1030

BAKERY EQUIPMENT MANUFACTURERS ASSOCIATION
521 Fifth Avenue
New York, New York 10017
Raymond Walter, Ex. Sec.
& Treas.
212/687-9071

BEVERAGE MACHINERY MANUFACTURERS ASSOCIATION, INC.
Suite 610
1000 Connecticut Ave., N.W.
Washington, D.C. 20036
J.R. Pat Gorman, Ex. V.P.
202/785-9030

COMMERCIAL REFRIGERATOR
MANUFACTURERS ASSN.
1730 Pennsylvania Ave., N.W.
Washington, D.C. 20006
Garis F. Distelhorst, Ex. Sec.
202/785-0500

CONVEYOR EQUIPMENT MANUFACTURERS ASSOCIATION
1000 Vermont Ave., N.W.
Washington, D.C. 20005
Charles E. Perry, Ex. Sec.
202/628-4634

DAIRY & FOOD PROCESSING
INDUSTRIES SUPPLY ASSN. INC.
5530 Wisconsin Ave.
Chevy Chase, Maryland 20015
Fred J. Greiner, Ex. V.P.
301/652-4420

FOOD PROCESSING MACHINERY &
SUPPLIES ASSOCIATION
Suite 700, 1828 L St., N.W.
Washington, D.C. 20036
Dewey Clower, President
202/833-5770

MEAT INDUSTRY SUPPLY & EQUIPMENT ASSOCIATION
1900 Arch Street
Philadelphia, Pa. 19103
R. Franklin Brown, Ex. Dir.
215/564-3484

MEAT MACHINERY MANUFACTURERS INSTITUTE
1900 Arch Street
Philadelphia, Pa. 19103
R. Franklin Brown, Ex. Dir.
215/564-3484

PACKAGING MACHINERY MANUFACTURERS INSTITUTE (PMMI)
2000 K Street, N.W.
Washington, D.C. 20006
Claude S. Breeden, Jr., Ex. Dir.
202/331-8181

POTATO CHIP INSTITUTE INT'L
Suite 915, Euclid Office Plaza
26250 Euclid Avenue
Euclid, Ohio 44132
Lawrence E. Burch, Ex. V.P.
216/289-0500

FOOD PROCESSING AND PACKAGING EQUIPMENT (Cont'd)

1. Trade Associations (Cont'd)

SUGAR EQUIPMENT & SERVICE
EXPORT ASSOCIATION
582 S. Washington Drive
Sarasota, Florida 33577
Dudley Smith
813/388-4140

Source: National Trade and Professional Associations of the United States 1976 Columbia Books Inc.
Washington, D.C.

2. Trade Journals

BAKERY PRODUCTION AND MARKETING

Gorman Publishing Company
3460 John Hancock Center
Chicago, Illinois 60611
Arnie Orloski, Managing Editor
312/943-5300

CANNER/PACKER - monthly
Gorman Publishing Company
3460 John Hancock Center
875 N. Michigan Avenue
Chicago, Illinois 60611
Fran Belshaw, Editor
312/943-2300

BAKERY PRODUCTION AND MARKETING - BUYERS GUIDE

Gorman Publishing Company
3460 John Hancock Center
Chicago, Illinois 60611
John E. Gorman, Pres. & Pub.

DAIRY INDUSTRIES CATALOG
Magazines for Industry, Inc.
777 Third Avenue
New York, New York 10017
212/838-7778

BAKING INDUSTRY - BUYING DIRECTORY

Peacock Business Press, Inc.
200 S. Prospect Avenue
Park Ridge, Illinois 60068
Joseph S. Peacock, President
312/823-3145

FOOD ENGINEERING - monthly
Chilton Company
Chilton Way
Box 2035
Radnor, Pennsylvania 19089
James R. Russo, Editor-in-Chief
215/687-8200

BEVERAGE INDUSTRY - ANNUAL MANUAL

Magazines for Industry, Inc.
777 Third Avenue
New York, New York 10017
212/838-7778

FOOD EQUIPMENT - quarterly
Putman Publishing Company
430 N. Michigan Avenue
Chicago, Illinois 60611
Romayne Chamberlain, Editor
312/644-2020

CANDY & SNACK INDUSTRY BUYING GUIDE

Magazines for Industry, Inc.
777 Third Avenue
New York, New York 10017
Don Gussow, Pres. & Ed. Chief
212/838-7778

FOOD PLANS IDEAS - bimonthly
Lakewood Publications, Inc.
731 Hennepin Avenue
Minneapolis, Minnesota 55403
R.W. Anderson, Editor
612/333-0471

FOOD PROCESSING AND PACKAGING EQUIPMENT (Cont'd)

2. Trade Journals (Cont'd)

FOOD PROCESSING - monthly
Putman Publications, Inc.
430 N. Michigan Avenue
Chicago, Illinois 60611
Roy Hlavacek, Editor
312/644-2020

FOOD PRODUCTION AND MANAGEMENT
2619 Maryland Avenue
Baltimore, Maryland 21218
Arthur Judge, II, Ed. & Pub.
301/467-3338

MEAT PROCESSING - DIRECTORY
OF SUPPLIERS ISSUE - December
The Davies Publishing Company
645 N. Michigan Avenue
Chicago, Illinois 60611
Robert K. Davie, Pub.
312/943-2143

MODERN PACKAGING - monthly
Morgan Grampian Publishing Co.
205 East 42nd Street
New York, New York 10017
Thomas M. Jones, Editor-in-Chief
212/573-8107

MODERN PACKAGING - ENCYCLOPEDIA
AND PLANNING GUIDE ISSUE - Dec.
Morgan-Grampian Publishing Co.
205 E. 42nd Street
New York, New York 10017

PACKAGE ENGINEERING - monthly
Cahners Publishing Company
5 S. Wabash Avenue
Chicago, Illinois 60603
R. Bruce Holmgren, Editor
312/372-6880

PACKAGING DIGEST - monthly
400 N. Michigan Avenue
Chicago, Illinois 60611
Robert W. Heitzman, Editor
312/644-0550

POTATO CHIPPER
Potato Chip Institute Int'l
Suite 915 Euclid Office Plaza
26260 Euclid Avenue
Euclid, Ohio 44132
Nancy Kelly, Editor

QUICK FROZEN FOODS INT'L
E. W. Williams Publishing Co.
757 Third Avenue
New York, New York 10017
212/572-5957

THE MANUFACTURING CONFECTIONER -
PURCHASING EXECUTIVES' GUIDE
The Manufacturing Confectioner
Publishing Company
1031 South Boulevard
Oak Park, Illinois 60302
E.R. Allured, President
312/848-6310

Source: Business Publication - Rates and Data
Cahners Publications, Boston, Massachusetts
Vol. 55 no. 11, November 24, 1973

(The prices of the above journals may be obtained by writing directly to the publisher.)

U.S. GOVERNMENT SPONSORED EVENTS OVERSEAS

CALENDAR

Further information on the events listed below may be obtained by contacting the nearest U.S. Commerce District Office or write Office of International Marketing, Room 4012, Bureau of International Commerce, U.S. Department of Commerce, Washington, D.C. 20230. If overseas, contact the nearest U.S. Embassy. The listed events/dates are subject to change or cancellation without prior notice.

FOOD PROCESSING AND PACKAGING EQUIPMENT

TRADE FAIRS:

Denmark-PAKTECH (2).....	Dec 1978
Bangkok (Solo) (1).....	Jan 1979

TRADE CENTER EXHIBITIONS:

Iran (3).....	Mar 1978
Mexico City (3).....	Apr 1978
Taipei (2).....	Jul 1978
Sao Paulo.....	Sep 1978

SPECIALIZED TRADE MISSIONS:

Philippines/New Zealand/Australia.....	Jun 1978
Turkey/Greece.....	Sep 1979

SEMINAR MISSIONS:

Bulgaria/Hungary/Poland (4).....	Oct 1978
Cameroon/Zaire/Ivory Coast (1).....	Feb 1978

VIDEO/CATALOG EXHIBITIONS:

Korea/Taiwan/Philippines (2).....	Mar 1978
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CATALOG EXHIBITIONS:

Nicaragua/Honduras/Guatemala.....	Mar 1978
Nigeria.....	Apr 1978
Ecuador/Chile/Peru.....	Oct 1978
Netherlands (4).....	Nov 1978

(1) along with agricultural equipment

(2) only packaging equipment

(3) along with non-food packaging equipment

(4) along with drug processing and packaging equipment

U.S. TRADE PROMOTION
FACILITIES ABROAD

COLOGNE

U.S. Int'l Marketing Center
Bahnhofstrasse 1-9 (ABC Haus)
5000 Cologne 1
Germany

LONDON

4/5 Langham Place
London, W.1 U.K.
Telex: 24196

MEXICO CITY

Liverpool #31
Col. Juarez
Mexico City 6, D.F., Mexico
Telex: 001773685

MILAN

Via Gattamelata, 5
20149 Milan, Italy
Telex: 36208 USTCMIL

MOSCOW

U.S. Commercial Office
15 Chaykovskovo
Moscow, U.S.S.R.
Telex: 7805

OSAKA

American Merchandise
Display Center
Sankei Kaikan Building
Osaka, Japan

PARIS

123 Avenue Charles de Gaulle
92200 Neuilly
Paris, France
Telex: 61-731 USTCNLLSN

SAO PAULO

U.S. Trade Center
Avenida Paulista 2439
San Paulo, Brazil
Telex: 3911125274

SEOUL

82 Sejong
Seoul, Korea

SINGAPORE

Malayan Credit House
Ground Floor
96 Somerset Road
Singapore 9, Singapore

STOCKHOLM

Vasagatan 11, S-101 28
Stockholm, Sweden
Telex: 17306 TRACENT

SYDNEY

37 Pitt Street
Sydney N.S.W. 2000
Australia
Telex: 20158

TAIPEI

Taiwan Glass Company Bldg.
261 Nanking East Road
Section 3
Taipei, Taiwan

TEHRAN

61 Elizabeth II Boulevard
P.O. Box 50
Tehran, Iran
Telex: IR-213047

TOKYO

Tameike-Tokyu Building
1-14 Akasaka, 1-CHOME
Minato-ku
Tokyo 107 Japan
Telex: 2424895 USTCJ

WARSAW

U.S. Trade Development
Center
Ulica Wiejska, 20
Warsaw, Poland
Telex: 813934 USTDOPL

MAJOR PRODUCT EXHIBITIONS IN THE U.S.

The following listing includes many of the major U.S. conventions and exhibitions covering the Food Processing and Packaging industry. This information is subject to change without prior notice.

CALENDAR

<u>DATE</u>	<u>EVENT</u>	<u>LOCATION</u>	<u>SPONSOR</u>
<u>1978</u>			
Feb. 12-15	* Int'l Expo. for Food Processors	McCormick Place Chicago, Ill.	Food Processing Mach. & Supplies Assn.
Feb. 16-18	Int'l Food and Agri. Show	Rivergate New Orleans, La.	Southern U.S. Trade Assn.
April 5-8	Expo Pesca Pan Americana	Roberto Clemente Coliseum San Juan, P.R.	Nat'l Fisherman Expositions
Apr. 25-27	N.E. Packaging Pavilion	Commonwealth Pier Exhibition Hall Boston, Ma.	Walter Edmons
June 4-7	IFT Food Expo.	Dallas, Texas	Inst. for Food Technologists
Aug. 6-9	Amer. Convention of Meat Processors	Gateway Convention Ctr./Sheraton Inn St. Louis, Mo.	American Assn. of Meat Processors
Oct. 30- Nov. 3	* Nat'l Pkg. Expo	McCormick Place Chicago, Ill.	Pkg. Machinery Mfrs. Institute
Nov. 5-9	* Food & Dairy Expo	Anaheim Conv. Ctr. Anaheim, Ca.	Dairy & Food Industries Supply Assn.
Nov. 11-14	American Meat Inst. Convention	McCormick Place Chicago, Ill.	Amer. Meat Institute
Nov. 12-15	Nat'l Frozen Food Conv. & Expo.	S.F. Hilton San Francisco, Ca.	Amer. Frozen Food Food Inst., & Nat'l Frozen Food Assn.
Nov. 28-30	Int'l Soft Drink Industry Expo	World Congress Ctr. Atlanta, Ga.	Nat'l Soft Drink Assn.
<u>1979</u>			
Jan. 21-24	Int'l Expo for Food Processors	Civic Center San Francisco, Ca.	Food Processing Mach. & Supplies Assn.
Jan. 29- Feb. 1	Int'l Air Conditioning, Heating	Civic Center Phila., Pa.	Air Conditioning & Refrig. Inst., & A.S.H.R.A.E.

* U.S. Foreign Buyer Shows

INTERNATIONAL FOOD EXPO SET FOR U.S. IN 1978:

FOOD AND DAIRY EXPO '78 - the leading U.S. exposition of food and dairy processing systems, supplies, and services -will be staged again November 5-9, 1978, at the Anaheim Convention Center in Anaheim, California.

It is estimated that 300 major U.S. and international equipment manufacturers, supply and service firms, will provide exhibits in the following areas:

processing systems, components, and handling equipment; ingredients; packaging equipment, materials, and containers; refrigeration equipment and promotion materials; cleaning/sanatizing systems and products; refrigerated transport equipment and components; general supplies and professional service.

For the thousands of international buyers and officials expected to visit the Expo, special travel, hotel, and translation assistance will be provided. In addition, this event will be supported by the Foreign Buyer Program of the Department of Commerce. Foreign businessmen will be welcomed by a Commerce representative and helped to establish contacts with U.S. exhibitors.

Contact the Dairy and Food Industries Supply Association, 5530 Wisconsin Avenue, Suite 1050, Washington, D.C. 20015. Information is also available from U.S. Embassies and Consulates worldwide.





WORLD'S LARGEST PACKAGING EXHIBITION SET FOR OCTOBER '78:

PACK EXPO, said to be the world's largest exposition for packaging manufacturers, is scheduled for October 30 to November 3, 1978 at McCormick Place in Chicago, Illinois. PACK EXPO, which is expected to draw some 30,000 visitors, will be sponsored by the U.S. Packaging Machinery Manufacturers Institute (PMMI), whose 150 member firms represent about 75 percent of U.S. production in the field of packaging.

Buyers and officials from more than 50 foreign countries are expected to visit the approximately 500 displays of packaging machinery and materials ranging from simple, semi-automatic machines to the most sophisticated high-speed equipment.

This event will be supported by the Foreign Buyer Program of the Department of Commerce. Foreign businessmen will be welcomed by a Commerce representative who will help them to establish business contacts with exhibiting firms. Other services offered to foreign visitors by PACK EXPO will include professional seminars, tours of major Chicago packaging operations, and help in locating translators.

Write: Christopher R. Bevevino, Packaging Machinery Manufacturers Institute, 2000 K Street, N.W., Washington, D.C. 20006 or contact the nearest U.S. Embassy.

AN INVITATION TO ALL FOOD PROCESSORS...

THE INTERNATIONAL EXPOSITION FOR FOOD PROCESSORS (IEFP) will be held February 12-15, 1978 in McCormick Place, Chicago, Illinois.

This Exposition, said to be the largest annual event in the food processing industry, is expected to attract representatives from every section of the food production, preparation, processing, packaging, and distribution cycle. Some of the areas to be represented at the '78 IEFP include:

containers and packaging and the equipment for their manufacture;
horticultural-agricultural equipment and supplies;
material handling;
engineering, industrial planning, and turnkey services;
product preparation and processing equipment;
quality control and instrumentation;
environmental, sanitation;
communications and other services;
ingredients and miscellaneous supplies.

IEFP will be supported by the Department of Commerce's Foreign Buyers Program. A Commerce representative will welcome foreign visitors and assist them in contacting U.S. exhibitors.

Groups interested in increasing their food production capability will find this one of the most significant opportunities of the business year.

Contact the nearest U.S. Embassy or write: Food Processing Machinery and Supplies Association, 1828 L Street, N.W., Washington, D.C. 20036. Telephone: (202) 833-5770.



LICENSING AND INVESTMENT PROPOSALS

The following firms have contacted the U.S. Department of Commerce and specifically requested assistance in locating overseas agents, distributors, joint ventures, etc. Please publish this information in the Commercial Newsletters. If the post does not publish a Newsletter, please disseminate this information to the local business community through all available channels.

DIGITAL COUNTER - Seeks licensees or distributors for a unique digital counter with application in schools and computer courses. The counter is economical, permits on hand use for familiarization and emphasizes concepts by graphic visual means. Designed for easy assembly. WRITE: Mr. Thomas V. Cooper, Jr., President, Automation Consultant Services, Dept. CN, P.O. Box 386, McLean, Virginia 22101 U.S.A.

SNACK FOOD MANUFACTURING - Firm offers technical assistance in starting or expanding snack food manufacturing. Products include potato chips, corn chips, and cookies. Company offers plant layout, equipment selection, installation supervision, personnel manning and training, new product development, cost control and plant start up. WRITE: Frazier & Associates, Dept. CN, P.O. Box 993, Severna Park, Maryland 21146 U.S.A.

ALL-TERRAIN VEHICLE - The "SUR-TREK" has the ability to operate with up to four people including the driver or a total payload of 750 lbs (338 kg), over roads, paths, dikes, wooded areas, hilly terrain, streams, canals, swamps and on paved roadways at speeds up to 30 mph. It has fully articulated twin hulls with eight wheels, all driving, thus providing excellent all-terrain capability. The driver compartment is arranged much like an automobile with

conventional steering wheel, gas and brake pedals and gear shift lever. WRITE: York Industries Inc., Dept. CN, York County Industrial Park, P.O. Box 127, Emigsville, Pennsylvania 17318 U.S.A.

ELECTRICAL CIRCUIT - Seeks licensees to manufacture a newly developed and patented circuit for 3-phase A.C. power supplies, particularly rectifiers. According to the firm, 43 percent less current is used in the autotransformer and associated parts. WRITE: Mr. William L. Fisher, Z.F.C. Partnership, Dept. CN, 1051 Naughton Street, Room 202, Troy, Michigan 48084 U.S.A.

LONDON FOG RAINWEAR AND OUTERWEAR - The internationally known manufacturer of rainwear and outerwear for men and women, London Fog, seeks licensees to make and distribute their products. Ideally, company desires contacts with quality oriented apparel manufacturers who have established sales organizations. WRITE: Mr. Henry C. Naiman, Vice President for Corporate Development, Londontown Corporation, Dept. CN, Londontown Boulevard, Eldersburg, Maryland 21784; Telex: 87-711. Cable: LONDONFOG. U.S.A.

WET DIAPER ALARM - Licensees are sought to manufacture a device that detects and displays when a change of diaper is needed. The application

is not restricted only for use with babies, but will also prove effective for general use by paraplegics, the elderly and the infirm. The diaper alarm consists of three parts: the sensor strip, the sensor connector and the indicator. The sensor strip is an exchangeable, soft, flexible and self-positioning device attached to user. The sensor connector serves to connect the sensor strip with the indicator and is operated by two hearing-aid batteries which are replaceable. The heart shaped indicator signals the diaper condition. Patented in U.S.A., Canada, United Kingdom and Switzerland, with pending in Sweden, Japan, Germany and other countries. WRITE: Baby Dry Corporation, Dept. CN, P.O. Box 85023, Hollywood, California 90072 U.S.A.

PATENTED BALL HUB - Company seeks licensees to manufacture and distribute its patented Ball Hub, for self aligning shaft couplings, and for standard sprokets, V-belt sheaves, and spur gears up to 10 degrees. Will provide exclusive rights to know-how, drawings, test and samples. WRITE: Mr. Bert Jarren, President, Bert Jarren Company, Inc., Dept. CN, 260 South Sycamore Avenue, Los Angeles, California 90036 U.S.A.

AUTOMATIC MONITOR CONTROLLER - Licensees are sought to manufacture a general purpose scheduling device for use in scheduling and monitoring work in progress. The controller provides display of complete job scheduling for daily, semi-weekly, weekly or any other combination of multiple days. Its advantages include automatic schedule updating with control for immediate alertness and complete flexibility for user adaptation to individual requirements. WRITE: Mr. Thomas V. Cooper, Jr., Automation Consultant Service, Dept. CN, P.O. Box 386, McLean, Virginia 22101 U.S.A.

IRRIGATION EQUIPMENT - Company seeks cooperative arrangement in marketing

its irrigation equipment. It is interested in a minority investment in a company established to produce seam welded aluminum tubing for use in the irrigation of agricultural crops.

WRITE: Mr. Charles R. Near, Hastings Irrigation Pipe Company, Dept. CN, Box 607, East Highway #6, Hastings, Nebraska 68901 U.S.A.

HOLLOW FIBERS FOR TISSUE CULTURE - Seeks licensees with experience in hollow fiber technology to manufacture and market hollow fiber-containing devices that permit isolated cells to grow and form solid tissue masses in vitro. This technique may be used within laboratories to study physiologic or chemotherapeutic effects of drugs, toxins, hormones, or other bioactive agents upon cells or to produce large quantities of hormones from cells maintained within the device. WRITE: Cellco, Inc., Dept. CN, 9424 Locust Hill Road, Bethesda, Maryland 20014 U.S.A.

MOLDS FOR CULTURED MARBLE MANUFACTURING - The design and manufacturing of quality molds will produce cultured marble sinks, counter tops, bathtubs, shower enclosures and flat stock for both exterior and interior walls and floors. The U.S. firm's formula is composed of 80 percent limestone and the remaining 20 percent are a combination of polyester resins, all of which are available locally worldwide. The company has established over 200 factories in the United States and fourteen in five foreign countries. Included in the mold package is a complete training program in the U.S. and in the country in which the new factory is being established. No franchise fees or royalties. The total mold package, including training is approximately \$100,000 FOB factory. WRITE: Mr. London C. Whitted, Vice President, U.S. Marble, Inc., Dept. CN, 1333 Lawrence Expressway, Suite #108, Santa Clara, California 95101 U.S.A.

NEW PRODUCTS U.S.A.

The following product information has been selected by the Department of Commerce for promotion through the New Product Information Service (NPIS). This information is also made available by Commerce on a selected basis to USIA and VOA. While the firms mentioned in CNFS are believed to be reliable, no responsibility can be assumed by the U.S. Government or its representatives for the accuracy of the new product descriptions which are based on information supplied by the listed U.S. firms. Both technical and non-technical products are deliberately included in CNFS to ensure worldwide market applicability. Please reprint as many new product descriptions as possible.



AGRICULTURAL MACHINERY AND EQUIPMENT

HEAVY-DUTY MACHINE SPREADS LIQUID MANURE - The "Hawk" Liquid Manure Spreader uses a powerful impellor pump, the company says, to agitate and discharge as much as 3,200 gal (12,160 l) in as little as 5 1/2 minutes. The sturdy tractor-driven tank can spread on the surface or inject manure as deep as 12 in

(30.5 cm) into the soil. All operations are handled from the tractor seat and the pump, located at the front of the tank, is easily watched during spreading. The multiple injector attachment covers two or four field rows at one time and, since there are no internal valves, time wasted by fouling and plugging is reduced. Sells from \$5,640 to \$6,950. WRITE: Ted E. Mann, Hawk Bilt Company, Dept. CN, 402 E. 6th Street, Vinton, Iowa 52349 U.S.A.

SPRIG PLANter FOR GRASS - The manufacturer believes this to be the world's first totally automatic sprig planter. Unlike semi-automatic machines, the tractor-drawn planter will plant 5 to 200 bushels (.18 - 7.2 cu m) of grass per acre without additional labor. The durable sprig planter is available in 1 to 4 row configurations designed to plant all kinds of grass in almost any soil including rocky terrain with tree stumps. Cattle raisers, anyone rebuilding grasslands, owners of golf courses, parks, etc. are the main end-users. Sells for \$4,360 FOB Oklahoma. WRITE: Edward J. Fay, Edward J. Fay and Associates, Inc., Dept. CN, 9800 Northwest Freeway, Houston, Texas 77092 U.S.A.

REMOTE WEIGHT INDICATOR FOR AGRI-BUSINESS TRUCK SCALES - "WIIT/WISP" is a computerized system for processing weight data required in shipping agricultural products by truck or rail car. Digital weight indication is the main function of the micro-processor-based "Weight Indicator Intelligent Terminal" ("WIIT"); the "Weight Indicator Slave Printer" ("WISP") supplies a permanent record of gathered data. Compatible with full or single loadcell scales, this system can also provide weight calculations and weight interpretations. With optional memory capacity, it can store and recall information such as the gross weights of up to 25 different vehicles. Other options include tare allowance, conversion functions, and self-test features. Price is \$6,000 to \$10,000. WRITE: A. J. Conte, Howe Richardson Scale Company, Dept. CN, 680 Van Houten Avenue, Clifton, New Jersey 07015 U.S.A.

HYDROPONIC (SOILLESS) AGRICULTURE METHOD - This firm's hydroponic systems are designed to grow vegetables or green livestock feed, year round and regardless of the climate, without soil. No arable land is needed. Vegetable yields per acre are said to be 18 to 50 times that of good soil and recycling systems make possible 90 percent to 97 percent savings on water needs. Hydroponic produce, the firm states, yields a superior flavor and extended shelf life. Green grass for livestock may be grown at a rate of 1 ton (.9 t) per day per 1 1/3 sq ft (.12 sq m). Price is \$50,000 and up. The company will provide complete training and technical assistance for projects of any size and will do research and feasibility studies. Agents, distributors, licensees are sought. WRITE: Malcolm Lentz, Hydroculture, Inc., Dept. CN, P.O. Box 1655, Phoenix, Arizona 85311 U.S.A.

IMPROVED FERTILIZER FROM ORGANIC MATERIALS - "Bountilife" is a combined fertilizer and soil conditioner which, the manufacturer says, is unsurpassed in stimulating plant growth. Made primarily from organic materials, "Bountilife" also includes inorganic diamonium phosphate and special bacteria which aid plant growth. It contains 22 trace elements needed for fast, healthy growth. In addition, this product is said to reduce alkalinity of soils, resist spoiling, and stimulate the growth of earthworms which help plant development. The firm seeks agents and distributors. WRITE: Erich Hausmann, Apex World Trade, Ltd., Dept. CN, 418 West Magnolia Avenue, Glendale, California 91204 U.S.A.

ANTI-RODENT TOXIN WITH HIGH ATTRACTION/KILL RATE - According to the manufacturer of "VIZON", this rodent-control toxin has been field tested in areas infested with Norway rats, roof rats, and house mice. Rodents allowed to feed under usual conditions with bowls of their ordinary diet and of "VIZON" equally available, consumed 70 percent of the toxin as compared to 30 percent natural food. At the completion of testing, "VIZON" was found to have had 100 percent success in killing rodents exposed to it. Shippers, farmers, home owners, and others troubled by rodents are suggested end-users.

Price: \$1.10 per lb (0.45 kg).
Distributors are sought. WRITE:
Joseph D. Mazzotta, Ocean State Pest Control and Product Manufacturing Company, Inc., Dept. CN, P.O. Box 3476, Providence, Rhode Island 02909 U.S.A.

VACCINE IMMUNIZES FISH AGAINST VIBRIOSIS - "Hivax" veterinary vaccine employs a new one-step technique for the mass immunization of salmon, trout, and other salmonids against vibriosis caused by *Vibrio anguillarum* bacteria. The single step procedure is desirable, the firm points out, because it minimizes stress and handling of fish and is economical as well. Fish hatcheries and similar operations are the principal end-users. Sells for \$300. The company is seeking agents and/or distributors for this product.
WRITE: William L. Downs, Tavolek, Inc., Dept. CN, 2779 152nd Avenue, N.E., Redmond, Washington 98052 U.S.A.

AIR AND WATER PURIFICATION AND POLLUTION CONTROL EQUIPMENT

GAS CALIBRATION SYSTEM FOR MONITORING AIR POLLUTION - The "Dasabi Model 1005-C2 Gas Calibration System" is primarily a tool for calibration of an air monitoring network where main air pollutants must be checked at all hours. The unit uses gas phase titration (designed to operate without dangerous or expendable reagents) to calibrate gases such as O_3 , CO, HC, NO, NO_2 , SO_2 , and H_2S . Both manual and automatic preprogrammed operations are possible. The unit contains its own stable ozone generator and the desired ozone concentration can be dialed by the operator. Current price is \$9,750. This gas calibration system is recommended for governmental, industrial, or educational groups concerned with air pollution. WRITE: Fabrizio Griguoli, Dasabi Environmental Corporation, Dept. CN, 616 E. Colorado Street, Glendale, California 91205 U.S.A.

AUDIO - VISUAL AND TRAINING AIDS EQUIPMENT

TABLE TOP VIEWER FOR 35mm COLOR SLIDES - The "Prima" Slide Viewer projects 35mm color slides onto a 5 x 5 in (127mm x 127mm) rear-projection screen, producing bright, sharp pictures for easy viewing in a brightly illuminated room. The firm says the unit is ideal for use in classrooms, libraries, or training programs and may be comfortably used by one or two students at a time. The viewer's semi-automatic slide changer has a storage capacity of 20 slides and the

low voltage, high intensity quartz projection lamp has a rated life of 600 hours. The company seeks distributors abroad. Price, \$20 to \$25. WRITE: Robert Reibel, Hudson Photographic Industries, Inc., Dept. CN, 2 South Buckhout Street, Irvington-on-Hudson, New York 10533 U.S.A.



FIRE FIGHTING SIMULATOR FOR CLASS-ROOM TRAINING - The "Fire Tactics Training Simulator" is used in conjunction with a 35mm slide projector to superimpose realistic fire and smoke on color slides of local buildings, warehouses, and other potential fire sites. The simulator provides realistic training sessions for fire-fighters using real potential fire situations. Fire intensity,

speed, spread, direction can be preprogrammed or controlled by the instructor to illustrate graphically the results of fire fighting actions suggested by trainees. Equipment is also available to provide sound effects and simulated communication procedure. Sells from \$500 to \$1,000. WRITE: S. Gottlieb, The Hydrotool Corporation, Dept. CN, 2640 Industry Way, Lynwood, California 90262 U.S.A.

AUTOMOTIVE DIAGNOSTIC SERVICING EQUIPMENT AND ACCESSORIES

NEW SYSTEM HEATS AUTOMOBILES WITH ENGINES OFF - Conventional passenger heaters in autos use heat from water circulated by the engine pump. The "AUTOTHERM Car Comfort System" now offers a simple way to circulate hot water through the heater when the vehicle's engine is off. The company says this helps reduce fuel waste, air pollution, and fouled engines. Efficient heating can be maintained for as long as 1 hour after the engine is stopped. Easily attached to any water-cooled, 12-volt vehicle, the special magnetically-driven pump uses a minimum of power and reduces the problem of coolant leakage. Suggested for police, taxi-drivers, delivery men, etc., "AUTOTHERM" is priced from \$22 to \$53. Agents and distributors are sought. WRITE: F. J. Perhats, ARDEN-MARK, Inc., Dept. CN, 1280 Burr Oak, P.O. Box 333, Barrington, Illinois 60010 U.S.A.

DECORATIVE TAPE REFLECTS LIGHT AS RAINBOW OF COLORS - "Spectra-Lite" Tape is a metallized film embossed with concentric microscopic grooves to separate reflected light into the

colors of the spectrum. Available in roll, sheet, die cut, and silk screened forms, "Spectra-Lite" Tape is useful for pinstriping, decals, safety reflectors on bicycles and automobiles, bumper stickers, jewelry, billboards, business cards, and for any application in which an eyecatching display is needed. It has a weatherproof, pressure-sensitive, adhesive coating and performs best in direct sunlight or incandescent light. Priced between \$1.00 and \$300. WRITE: Edward Grotzky, Spectra-Lite Company, Inc., Dept. CN, P.O. Box 15082, Phoenix, Arizona 85060 U.S.A.

HAND-HELD VACUUM PUMP - The hand-held, manually operated "MITYVAC" vacuum pump is said to be a dependable unit much simpler and less expensive than other pumps available. Weighing only half a pound (230 g) and small enough to fit one's palm, the "MITYVAC" can yet achieve a vacuum of 25 in (63 cm) of mercury in seconds at a pumping rate of one cu in (15 cc) per stroke. With its various accessories, this device has virtually limitless applications in the automotive, industrial and medical fields. Price is \$22 to \$26. WRITE: F.R. Begani, Neward Enterprises, Inc., Dept. CN, P.O. Box 707, Oak Park, Illinois 60303 U.S.A.

SIMPLE, INEXPENSIVE UNIT FOR WASHING MOTOR VEHICLES - Although as easy to maneuver as a shopping cart, the "Scrubber" is said to allow one operator to thoroughly scrub and rinse moderately dirty cars in as little as 4 minutes. The battery-operated system requires no expensive washing bays; vehicles are

cleaned and rinsed without being moved from the parking lot. The unit is manually pushed around a car to wash the sides, hub caps, fenders, grillwork, bumpers, and all areas where insects, road grease, and mud are likely to accumulate. An optional attachment handles the hood, top and trunk of the car. Suggested for car dealers, car rental agencies, and other moderate-sized operations. Price is \$1,500 to \$1,800. WRITE: Jim D. Wood, Detroit Tool and Engineering, Dept. CN, P.O. Box 232, Lebanon, Missouri 65536 U.S.A.

BUILDING EQUIPMENT AND MATERIALS

DRYWALL TAPING SYSTEM FOR BUILDERS - This company offers a complete system for taping drywall installations. The "Tapeworm" self-contained automatic taping tool applies both tape and joint compounds simultaneously and at the proper ratio. According to the firm, the unit's fast, efficient application to flat and butt joints, and to angles along ceilings and corners, assures reduced time and labor costs. Included with the unit are a loading pump, corner roller, and corner finisher. Suggested for drywall and wallboard contractors and installers. Price range is \$1,595 to \$2,400 FOB Long Beach, California. Agents will be considered. WRITE: Tom Hauk, Tapeworm Drywall Tool Company, Dept. CN, 1245 E. 23rd Street, Long Beach, California 90806 U.S.A.

SOLAR HEATED HOUSES - Though priced to compete with conventional houses of the same size (90-135 sq m), these structures include an integrated solar heating system designed

to supply up to 80 percent of domestic heating needs. Both space heating (aided by a hydronic/forced air system and carefully built insulation) and hot water requirements are supplied by solar collectors built into the roof. Two conventional water heaters are also included as an inexpensive back-up system. Government agencies, housing contractors and developers, as well as engineering firms, may be interested in these houses priced from \$38,000 to \$47,000 (U.S.) each. WRITE: Warren D. Buckmaster, Blue Skies Radiant Homes, Dept. CN, 40819 Park Avenue, Hemet, California 92343 U.S.A.

NEW MACHINE AUTOMATICALLY APPLIES BUILDING MORTAR - For 2,000 years, the trowel has been the mason's tool for applying mortar. Now there is a machine which does the job quickly and automatically, reducing labor costs, the manufacturer says, by as much as 50 percent and mortar waste by 40 percent. The "Mortar Runner" adjusts to most widths of bricks or blocks and is totally self-propelled. As many as 20 blocks a minute can be mortared - a rate sufficient to serve three masons. Capable of both automatic or manual operation, the "Mortar Runner" is ideal for masons and builders. Hopper capacity is three gallons. Price is \$450 to \$500 each. WRITE: Claude Cain, Mortar Runner Inc., Dept. CN, 953A Main Street, Church Hill, Tennessee 37642 U.S.A.

HINGED BATHROOM CABINERY UNFOLDS TO INSTALL - Easy warehouse storage and simple installation are the chief features of this new design in bathroom cabinetry. Because of a remarkable hinged construction,

these "Vanafold" bathroom cabinets simply unfold into a finished and installed product. The installer merely folds out the sides, back bracket, and bottom panel until they lock into place. No tools are required. Cultured marble vanity tops with an integral shell bowl design are also included. The price ranges from \$50 to \$200. WRITE: W.H. Preis, Vanafold, Inc., Dept. CN, 9028 Kennedy Boulevard, North Bergen, New Jersey 07047 U.S.A.

INSULATED ROOF DECK PANEL - The "Petrical/Urethane" building panel consists of a "Petrical" substrate (aspen wood fibers bound with a special cement) chemically bonded to urethane foam with a top layer of asphalt saturated roofing felt. Its principal advantage over competitive materials is that it provides a structural roof deck with high insulation value to meet low energy requirements. The manufacturer says the "Petrical/Urethane" panel system can provide a U factor as low as 0.066. The panels are also compatible with built-up roofing systems, provide excellent acoustical absorption, and offer dimensional stability. Price: 21.5 cents per foot FOB Cornell, Wisconsin. WRITE: John P. Carlson, Cornell Corporation, Dept. CN, 808 South 3rd Street, Cornell, Wisconsin 54732 U.S.A.

FIREPLACE FLUE DAMPER INSTALLS AT TOP OF CHIMNEY - Because it installs outdoors on top of the chimney, this new fireplace flue damper is said to avoid many of the limitations of conventional dampers. Excessive heat loss is reduced; birds, insects, and inclement weather are sealed out; downdrafts are prevented. In

addition, the product offers greater reliability than many other flues which are often warped by repeated exposure to very hot flames. The flue lid is spring-loaded in an open position to prevent accidental closure when a fire is burning. A stainless steel cable pulls it shut when desired. Available sizes cover standard terra cotta flue tiles. Price is \$19 and distributors are sought. WRITE: B.C. Lyemance, Lyemance International, Dept. CN, 141 North Sherrin Avenue, Louisville, Kentucky 40206 U.S.A.

BUSINESS AND OFFICE EQUIPMENT



AUTOMATIC TELEPHONE DIALING SYSTEM - The "Auto/Busy Dialer" combines many features in one unit. Attached to a telephone, the "Auto/Busy Dialer" will automatically redial a busy number up to 18 times before the user must dial again himself. In addition, as many as 18 frequently

phoned numbers may be stored by the "Dialer's" memory bank and activated by touching three buttons. The unit's automatic operation leaves the user's hands free until the phone is answered, and its special design instantly converts a dial telephone for push button use. The firm especially recommends this product for busy executives. The company is seeking agents and distributors for this \$200 product. WRITE: W. F. Sprinkle, A&W Electronic Company, Inc., Dept. CN, 2970 Blystone, Building 106, Dallas, Texas 75220 U.S.A.

MODULAR FILING AND STORAGE SYSTEM

FOR SHEET GRAPHICS - "Plan Center II" is a modular filing library for all sheet graphics including architectural plans, charts, geological maps, oversized documents, etc. The flexible, modular design is said to adapt perfectly to the storage needs and space restrictions of each purchaser. Front-loading steel file cabinets permit easy access in limited spaces, and sturdy reference tables offer a convenient work surface. Protective binders can store as many as 2,400 sheets of graphics per cabinet. Engineers, architects, librarians are among the chief end-users. Price ranges from \$180 to \$300. WRITE: John W. Doll, Plan Hold Corporation, Dept. CN, 17621 Von Karman Avenue, Irvine, California 92714 U.S.A.

CHEMICAL, PETROCHEMICAL INDUSTRY EQUIPMENT

FLEXIBLE STORAGE TANKS FOR LIQUIDS, GASES, POWDERS - "Petro-Flex" Tanks are collapsible, flexible containers for storing petroleum products, chemicals, gases, powders, or drinking

water. When empty, they fold into a compact bundle for easy handling; when full, they become pillow-shaped storage tanks designed to resist puncture, corrosion, and ordinary wear. "Petro-Flex" Tanks can also be used to convert flat-bed trucks into convenient, mobile storage tank-trucks. Tanks are custom-made with capacities from 100 gal (380 l) to 20,000 gal (76,000 l) for petro-chemical processors, farmers, trucking and aircraft companies, military groups, etc. Price ranges from \$500 to \$5,000. WRITE: Richard R. Thompson, Aero Tec Laboratories, Inc., Dept. CN, Export Department, 1201 Chestnut Street, Philadelphia, Pennsylvania 19107 U.S.A.

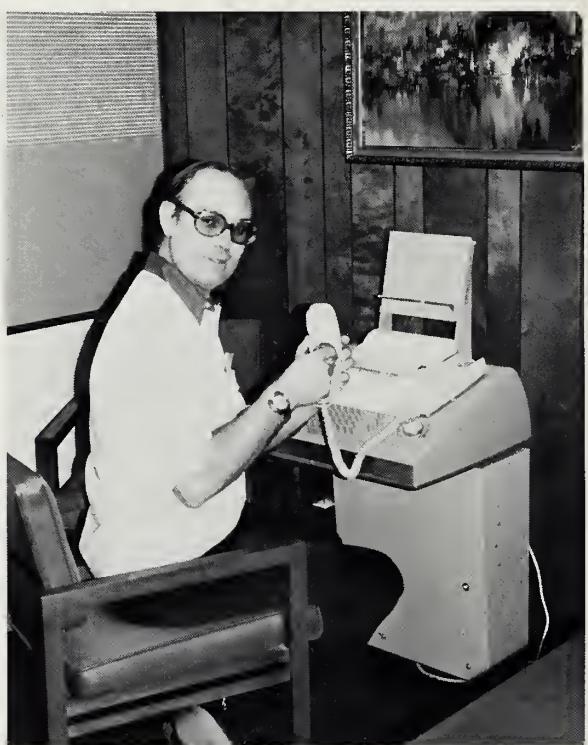


ELECTRONIC CHEMICAL METERING PUMP -

These new "dosing" pumps are designed to feed predetermined amounts of chemicals at regular intervals. They are used by water and waste treatment companies, paper chemical suppliers, and in other industrial applications. The polypropylene housing is reinforced with glass fibers to resist corrosion from chemicals or accidental breakage. Stroke length and frequency are adjustable over an output range of 200 to 1. The firm says the unit's

solid-state circuitry can handle any of the wide range of chemicals fed by metering pumps, while a built-in pressure relief system assures safety. These light, compact pumps sell from \$170 to \$600. Agents and distributors are sought. WRITE: R.L. Jewett, Liquid Metronics, Inc., Dept. CN, 33 Jones Road, Waltham, Massachusetts 02154 U.S.A.

COMMUNICATIONS SYSTEMS AND EQUIPMENT



TELETYPE RADIO LINK OFFERS SIMUL-

TANEOUS TELEPHONE, TELEX - A new solid-state communication system has been developed for areas where adequate telephone and telex subscriber facilities are not available. This new telex-telephone package provides simultaneous voice and telex over a single VHF or UHF radio link. The only external connections required are to a source of AC power and to a radio antenna (not included). Where wire facilities are available, the

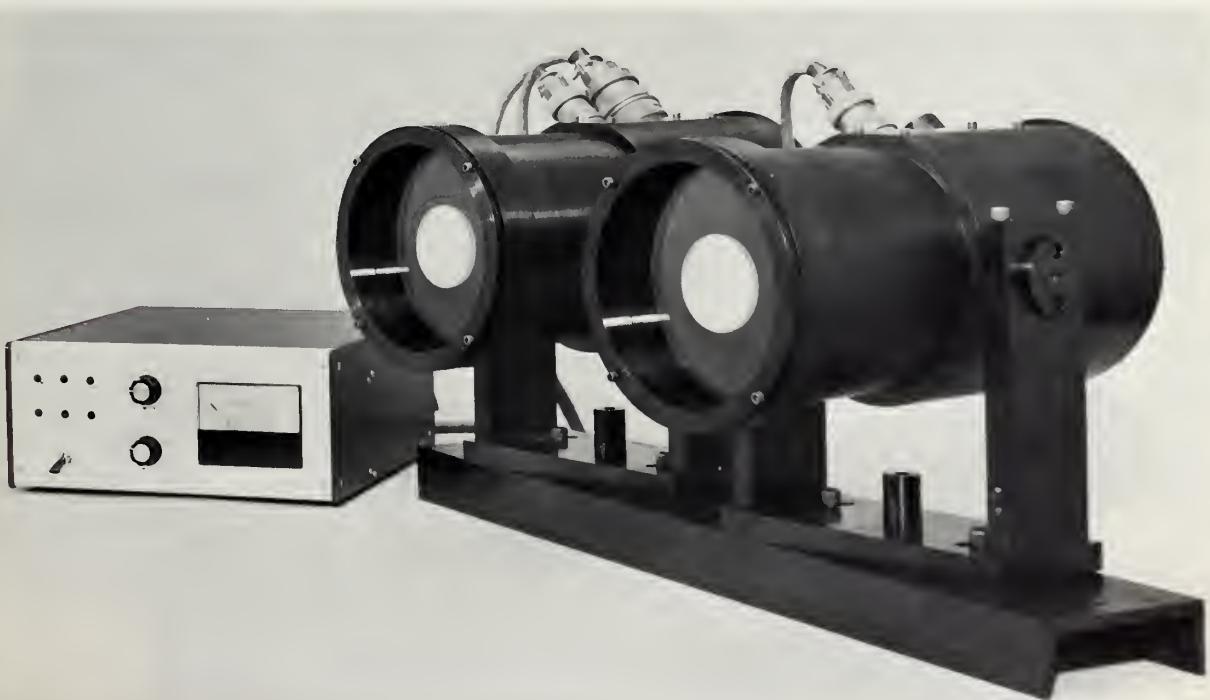
unit can provide simultaneous telex and telephone over a single pair of wires without costly telephone distribution systems. Housed in a standard teletypewriter cabinet, the unit sells from \$7,000 to \$9,000. Distributors are sought. WRITE: John W. McKenzie, Teksys Inc., Dept. CN, P.O. Box 29331, Dallas, Texas 75229 U.S.A.

INFRA-RED COMMUNICATION SYSTEM - This infra-red communication link can transmit up to 2 megabits of synchronous digital data per second across a "line of sight" path as long as 8 km (4.8 miles). This is said to be the highest bit transmission rate capacity in infra-red communications. The link is compatible with "Pulse Code Modulation" (PCM) techniques and operates in the 930-960 nanometer wavelength with power output options of 160 mW or 300 mW. A 172 mm Cassegrainian lens is used for both the transmitter and receiver. An optional optical alignment/testing set helps maintain the system. Recommended for telephone and utility companies, computer firms, educa-

tional groups, etc. Price is \$8,700 to \$14,000. WRITE: Don E. Ranniger, Claredon Company, Dept. CN, 8141 W. I-70 Frontage Road North, P.O. Box 1205, Arvada, Colorado 80001 U.S.A.

MINIATURE ANTENNA SYSTEM WITH BROAD RECEPTION BAND - The "UPS-191A

Active Antenna System" is engineered to receive signals in the entire 100 KHz-30MHz Range, thus eliminating the need for multiple antennas. It consists of a 9 in (23 cm) blade antenna with integral matching amplifier and an 8-output distribution amplifier that can be located up to 100 ft (30 M) from the blade. Designed for vehicular, shipboard, or aircraft platforms, the unit is immune to interfering frequencies induced by ground paths while the blade is specially coated to reduce ionization and precipitation static. Sells for \$10,000. WRITE: Arnold Swagerty, Bayshore Systems Corporation, Dept. CN, 5407 Port Royal Road, P.O. Box 1424, Springfield, Virginia 22151 U.S.A.



COMPUTERS AND PERIPHERAL EQUIPMENT

VERSATILE CASSETTE RECORDER FOR COMPUTER DATA - Because it is not designed to be "intelligent," the SC-1000 Cassette Recorder offers computer system designers and users many new, inexpensive system applications. Engineered to store and play back computer data, the recorder can be used as a high-speed loader for microcomputers and minicomputers or for such purposes as paper tape replacement, computer program storage, or field and laboratory data collection. The unit records at any rate from 50 to 1,200 bits per minute and will read or write any serial coding scheme. Price is \$795. The firm is seeking agents and licensees. WRITE: Gary Rocky, Seaton Corporation, Dept. CN, P.O. Box 193, Carrollton, Texas 75006 U.S.A.

PROCESS COOLING SYSTEM FOR MINI-COMPUTERS - The "MUXC/XW-3 EC" is a complete process cooling system engineered to create the proper year-round operating environment for computer rooms. These units provide precise humidity control while occupying a minimum of floor space (.5 sq m). Designed for easy installation with minimal maintenance and

service, these systems are said to increase computer reliability with reduced energy costs. A special feature uses waste heat to lower energy consumption. WRITE: G. Cohen, A.C. International Inc., Dept. CN, Old Cuthbert and Deer Roads, Cherry Hill, New Jersey 08034 U.S.A.

CONSTRUCTION AND MATERIALS HANDLING EQUIPMENT

MACHINE FOR EASY RECYCLING OF ASPHALT PAVEMENT - The "Eager Beaver" is engineered to recycle defective asphalt pavement using a cold milling process. The milling equipment, mounted on a heavy-duty industrial diesel tractor, cuts into the pavement (7.62 cm deep (3 in) and 106.68 cm wide (43 in)) with 96 carbide-tipped cutters. Recycling is accomplished by coating the milled asphalt with approximately 2 percent liquid asphalt cement during the milling process. The cement is metered by a positive displacement pump, and mixes with the milled asphalt to create a finished pavement base. Used by contractors and highway maintenance departments. Cost is \$90,000 per machine. WRITE: Earl F. Cutler, Cutler International, Inc., Dept. CN, 921 E. 27th Street, P.O. Box 3246, Lawrence, Kansas 66044 U.S.A.



CARRIER-SUPPORT SYSTEM FOR PNEUMATIC BREAKERS - Utility companies, construction and repair companies, road repair groups, and others will be interested in the new "Porta-Breaker," a wheeled carrier-support system which uses a special pneumatic cylinder to hold a pneumatic breaker rigidly in place and to absorb most shocks and vibrations during operation. Worker fatigue is thus reduced allowing longer work periods and the use of heavier breakers. This unit can be used to cut and break concrete or to compact sand or asphalt. It is said to be especially useful in cutting long lines in asphalt for the installation of sewer and water lines or underground utilities. Sells for \$885. Distributors already handling pneumatic breakers and supplies are sought. WRITE: Gordon W. Martin, Yamhill Market Management,

Inc., Dept. CN, P.O. Box 214, Newberg, Oregon 97132 U.S.A.

NEW CHEMICAL WATERPROOF AND PRESERVES CONCRETE - "Perma Crete" is a colorless solution that penetrates concrete and other masonry to waterproof and preserve it. The firm says the product's penetrating formula binds and seals the inter-spaces of concrete, brick, stucco, stone, etc. from within, increasing resistance to water, grease, oil, acid, and rubber (skid marks). On airport runways and near gasoline stations, "Perma Crete" reduces rubber build up and simplifies cleaning. In addition, the solution can seal cracks in water treatment tanks and eliminate crumbling stucco or "dusting" concrete. Price is \$13.75 per gal (3.8 l). Distributors and/or agents sought. WRITE: A. William Smith, Radcon Industries, Inc., Dept. CN, P.O. Box 15540, Las Vegas, Nevada 89114 U.S.A.

CONSUMER GOODS



ALL PURPOSE CLEANING AND POLISHING CLOTH - The chemically-treated "Miracle Cloth" is said to clean, wax, and polish in practically limitless household applications. Unlike cloths designed for one or two uses, the manufacturer says, "Miracle Cloth" removes rust from chrome and porcelain; cleans sterling silver, gold, copper, pewter, and many other metals; polishes glass and tile; even cleans wooden furniture, leaving a glossy finish that resists dust and marks. Designed to replace bulky cleaning chemicals, the "Miracle Cloth" sells for \$2.00. Agents and distributors are wanted. WRITE: Leon Cwengel, Sure Clean, Inc., Dept. CN, P.O. Box 20236, Denver, Colorado 80220 U.S.A.



"ME" DOLL MIRRORS CHILD'S FACE - A child's self-discovery and emotional growth are aided by playing with this doll whose face is an unbreakable plastic mirror. The appealing "ME" Doll reflects the child's changing expressions and moods to help foster self-awareness and aid in the development of communication skills. In addition, the 2-foot (.6 m) doll is ideal, the manufacturer says, for games of make-believe and puppet plays. The "ME" Doll features a safe, stuffed cloth body and colorful, removable clothing. Designed for both normal and handicapped children, the doll sells for \$19.50. WRITE: Asher B. Etkes, PCA Industries, Inc., Dept. CN, 29-24 40th Avenue, Long Island City, New York 11101 U.S.A.

SLIDING DOOR FRAME KITS - The firm says that simple assembly, flexible applications, and attractive decorative appearance are the major features of the "Snap-Fit" sliding door frame kit. A screwdriver attaches the frame to the floor and ceiling, while other parts simply snap together. The frames will accept a wide range of insert panels (not included) such as wood paneling, mirrors, chalkboards, plastic laminates, etc.

Paneling ideas are limited only by the installer's imagination. Tracks, rollers, and other exposed parts are made of steel prefinished in gold. Price is \$10 to \$17. WRITE: Alfred D. Furth, Delfa, Inc., Dept. CN, One World Trade Center, Suite 2741, New York, New York 10048 U.S.A.

MOTORIZED SKATEBOARD FOR SPORTS AND RECREATION - Skateboarding has been a popular sport for both young and old in the United States for several years. The conventional skateboard consists of a narrow board approximately 2 ft (0.6 m) long mounted on roller-skate wheels and used for play or sport. The rider stands, balancing on the board, and either glides downhill or propels the board with one foot over level ground. Now the self-propelled "Motoboard" makes possible uphill "slalom" skateboarding in addition to downhill or level-ground racing. A hand-held trigger throttle governs the quiet, powerful 23 cc (2-stroke) engine designed for speeds up to 30 MPH (48 KPH) and fuel economy as great as 180 miles per gal (76 km per l). The fuel mixture used is gasoline and 2-stroke oil (ratio 25:1). Price is \$180. The firm seeks qualified

stocking distributors with promotional capability. WRITE: Jim Rueroden, Motoboard International, Dept. CN, 592 Weddell Drive #10, Sunnyvale, California 94086 U.S.A.

VERSATILE RICK SHA - Like its traditional oriental counterpart, the "Versatile Rick Sha" can be pulled by a human operator, but it also adapts to other kinds of propulsion including bicycles, three-wheeled motorcycles, and even large dogs. Sturdily constructed, it is useful for such varied activities as golfing, dog training, grocery transportation, and hunting. For conserving fuel while having fun, the "Versatile Rick Sha" is said to be ideal. The entire unit is collapsible and necessary adapters and accessories are also available.

Price range is \$189 to \$260. WRITE: J.M. Smith, Ji Corporation, Dept. CN, 927 North Edgemore, Wichita, Kansas 67208 U.S.A.

WATER-SAVING DEVICE FOR TOILET

FLUSH TANKS - The manufacturer of the "Water Miser" says this simple, inexpensive device can save an ordinary family as much as 18,000 gal (68,400 l) of water per year. The "Water Miser" easily attaches to a toilet's flush tank to adapt it for more efficient conservation of water. Once installed, the company says, it can save as much as half the cost of water bills and significantly reduce the cost of pumping water from wells. The "Water Miser" is noncorrosive and operates without moving parts. Retails for \$4.98 each. Distributors and licensees are sought.

WRITE: Ian Billton, Lionel Billton Ltd., Dept. CN, 360 W. 51st Street, New York 10019 U.S.A.

VINYL CARPET PROTECTORS FOR STAIRWAYS - "CarpeTred" is a non-slip vinyl mat designed to protect carpeted

stairs in both commercial offices and private residences. Its transparent surface fits the contours of most carpeted stair steps, allowing the beauty of the carpet to show through. Special directional cleats make "CarpeTred" protectors self-adhering and also help to reduce the danger of slipping. Cumbrous runners, as well as the need for professional installation, are eliminated by the special design which simplifies sponge cleaning the protectors and vacuuming the carpet. "CarpeTreds" are priced from \$3.00 to \$5.00 each. WRITE: Don Baisden, Intervinyls, Inc., Dept. CN, P.O. Box 2386, Muscle Shoals, Alabama 35660 U.S.A.



HIGH FIDELITY STEREO LOUDSPEAKER -

Using a revolutionary concept in loudspeaker design, the "OHM F" loudspeaker produces coherent sound with one steeply-sloped 12-in transmission line driver covering the entire frequency range. The speakers constitute a floor-standing,

omni-directional, one-way system which produces all audible frequencies with virtually no distortion. The "OHM-F" is designed for those seeking state-of-the-art performance. Sells from \$100 to \$600 each. Firm is interested in dealers, agents, and distributors. WRITE: Edith Arm, OHM Acoustics Corporation, Dept. CN, 241 Taaffe Place, Brooklyn, New York 11205 U.S.A.



STATIONARY EXERCISER DUPLICATES BODY MOTIONS OF CROSS-COUNTRY SKIING - The "NordicTrack" exercise machine allows the user to "ski" indoors for the purpose of general exercise or to train for cross-country skiing. As a trainer, it permits practice and coaching indoors before season and during bad weather. As an exerciser, it provides smooth, rhythmic arm and leg exercise that avoids damaging, jarring motions associated with jogging. High heart rates are obtained with less apparent effort than when running, walk-

ing, or cycling. No motors are used, resistance is easily adjusted, and it is said to be easy to use, even by non-skiers. Wholesales for \$290. Company is seeking distributors or may consider licensees in some areas. WRITE: Ed Pauls, Pauls Sports, Inc., Dept. CN, Route 1, Box 615P, Excelsior, Minnesota 55331 U.S.A.

PORTABLE SOFT DRINK BAR - This firm says the "Dolphin Handi-Bar" is a practical way to manufacture and dispense soft drinks or other beverages on picnics, outings, vacations, or at home. The unit is made from tough, colorful plastics and comes equipped with aluminum seltzer bottle, cartridges of carbon dioxide, 4 syrup containers, and dispenser pumps. Popular soft drink flavors made by the "Handi-Bar" are said to cost about half as much as canned or bottled drinks. Extra syrup is available from the manufacturer. The unit also dispenses liquors, dessert toppings, ice cream soda mixes, etc. Sells for \$39.50. Agents and licensees are sought. WRITE: Keith O. Klopp, Brevia International, Ltd., Dept. CN, 140 S. Park Street, Port Washington, Wisconsin 53074 U.S.A.

RUST-PREVENTIVE COATING FOR IRON - Useful for home or industrial use, "Ferrothane" produces a hard, plastic finish especially formulated to prevent rust and corrosion in iron. This liquid product is available in a number of forms for spray-coating or brush applications. Colors, ranging from black or white to bright red, blue, or aluminum, are said to be rigorously monitored in production so that cans of the same color always match perfectly. "Ferrothane" can be applied with one coating since the primer is built into the formula. WRITE: Guillermo Morales, Flecto International Ltd.,

Dept. CN, P.O. Box 12955, Oakland,
California 94604 U.S.A.



ELECTRONIC FLASHING JEWELRY - These novel jewelry items use solid-state electronics to create eye-catching, electronic flashing jewelry. The company says a small battery (the kind used for hearing aids) powers an LED (light-emitting diode) "flasher" beneath the colored "jewel" for more than 500 continuous hours at the rate of one flash per second. Pins and necklaces with over 20 standard designs (traffic light, electric light bulb, flashing eye, etc.) are available. The company says virtually any trademarks, emblems, logo, or popular slogan in any language can be screened onto

existing jewelry. Price is \$3.60 to \$5.00 CIF. Representatives and distributors are sought for this "electric jewelry." WRITE: Les Morgenstern, Electric Jewelry International, Inc., Dept. CN, 2238 N. 87th Way, Scottsdale, Arizona 85257 U.S.A.

PARADE HATS FOR MARCHING BANDS -

This company manufactures imitation fur hats used by uniformed marching bands. Unlike fragile cardboard models, this product is constructed from a one-piece, molded plastic body which is more durable and crush-resistant. When compressed, the hats tend to return to their original shape. The sweatbands are turned to prevent perspiration from reaching the stitching and to provide greater cushioning when worn. Includes visor, chinstrap, and plume holder. Sells from \$10 to \$13 each. Distributors are sought. WRITE: Ron Kessler, Color Guard Sales, Inc., Dept. CN, 2361 Devon Avenue, Elk Grove Village, Illinois 60007 U.S.A.



REDESIGNED GOLF CLUBS - This firm manufactures a line of golf clubs redesigned to improve the performance of beginners and professionals. The "Parabolic Putter," for instance, has a hitting surface which imparts a rolling motion to the ball rather than the initial sliding motion which, the company says, other clubs give. This prevents deviations in the ball's course ordinarily caused by the shift from sliding to rolling action. On the "GTM-3 Golden Touch Irons," the hosel (the socket into which the club's shaft is inserted) is flattened to become an extension of the hitting surface. Off-center shots caused by hitting the ball with a rounded hosel are thus eliminated. Company is seeking distributors worldwide. Price is approximately \$17. WRITE: James M. Cole, Golf International Corporation, Dept. CN, 17941 Sky Park Circle, "J", Irvine, California 92714 U.S.A.



INSULATED CARRIER CONTAINER FOR BABY BOTTLES - Busy mothers will be interested in the "Babytainer," an insulated carrier for baby bottles especially designed to keep heated

or cooled liquids near the proper feeding temperatures for hours at a time. Convenient for traveling, shopping, or visiting, the "Babytainer" is made from shock-resistant plastic to assure safety. The nurser bottle fits snugly into the base of the carrier and the top locks over it with a simple twist. The built-up base helps to support the bottle on the child's chest and keeps the liquid flow constant. Distributors and licensees are sought. Price is \$7. WRITE: Scott E. Larson, Babytainer, Inc., Dept. CN, P.O. Box 1039, Burnsville, Minnesota 55337 U.S.A.

COMBINATION TWEEZERS AND PENLIGHT - "TweezerLite" is a simple combination of a finely crafted and precision balanced stainless steel tweezers with a strong, battery-operated pinpoint light. The product has been designed to perform the most minute tasks with precision. The numerous uses range from the removal of unwanted hair and putting on false eyelashes to the assembly of small parts for hobbies electro-mechanical, jewelry and optical purposes. The firm seeks distributors abroad. Price range is \$5.00 to \$10. WRITE: Harold Weiner, W.O.W. Export, Dept. CN, P.O. Box 49701, Los Angeles, California 90049 U.S.A.

ELECTRIC AND OTHER ENERGY PRODUCTION AND DISTRIBUTION MACHINERY & EQUIPMENT

PORTABLE POWER SOURCE - Though light enough to be carried by one person, the "PAW POWER" unit is said to be the most nearly universal portable power source ever developed. The "PAW" provides 5,700 watts Direct Current to power tools with universal motors (110 V or 220 V) or electric lights with small or large wattage. It combines the ability to heat metal for cutting, bending, or

forming, and a capacity for charging up to 6 batteries at one time. With special attachments, the "PAW" can weld copper, brass, aluminum, or steel. Many of these functions can be performed up to 250 ft (75 m) from the power plant. Price is approximately \$1,050 FOB Oklahoma City, Oklahoma. WRITE: John Shannon, JMJ Electronics Corporation, Dept. CN, P.O. Box 25971, Oklahoma City, Oklahoma 73125 U.S.A.

UNIT CONVERTS SINGLE-PHASE ELECTRICAL CURRENT FOR 3PHASE USE - "Phasemaster" Power Converters provide an inexpensive, reliable method of producing three-phase electrical current from single-phase power. Units are available from 1/4th HP to 100 HP for operating single motors or complete manufacturing facilities and special units are made for use with radio and television transmitters. Constant voltage regulation, efficient operation, reduction of servicing needs are a few of the listed advantages. "Phasemaster" is suggested for farmers, machine shops, broadcasting stations, and others. Representatives and distributors are sought. Price ranges from \$90 to \$8,615. WRITE: Aaron Katz, Kay Industries Inc., Dept. CN, 604 North Hill Street, South Bend, Indiana 46617 U.S.A.

AUTOMATIC VALVES FOR SOLAR HEATERS ON SWIMMING POOLS - These automatic valves are specifically designed for use with solar heating systems on pools and spas. Installed in the filter systems of swimming pools, these precision machined valves minimize back-pressure on filter pumps. An adjustable internal by-pass allows installers of solar pool heaters to adjust the flow through solar heaters and the back-pressure on filter pumps. Solid brass construction and solenoid assembly assures long, reliable operation. Price range is \$75 to \$90.

WRITE: Powell Greenland, Superior Controls Company, Inc., Dept. CN, 427 W. Palmer Avenue, Glendale, California 91204 U.S.A.

ELECTRONIC COMPONENTS

HIGH VOLTAGE RECTIFIER CONTACTOR -

These contactors are said to be ideal for DC Voltage switching in high voltage rectifier circuits. Once switched, they are designed to operate with a momentary application of power with no "holding" voltage required. Model 145-101 is a single pole, double throw unit; model 145-102 is double pole, double throw. Small size and compactness are outstanding features of these units. Specifications listed by the manufacturer: RF ratings - 17 KV, 25 amp; 220 volt and 50-60 cycle operation (available also at 110 volt); weight - 10.5 lb (4.7 kg). Priced at \$250. Distributors are sought. WRITE: Thomas B. Jones, Jr., Multronics, Inc., Dept. CN, 9005 Red Branch Road, Columbia, Maryland 21045 U.S.A.

ELECTRONIC INDUSTRY PRODUCTION AND TEST EQUIPMENT

AUTOMATIC CONFORMAL COATING MACHINE -

Manufacturers of semi-conductors will be interested in the "CC-870" conformal coating machine, said to be the first automatic machine of its kind. All operations involved - except for loading and unloading lead frames into the indexer - are entirely automatic. Replacing manual methods, the "CC-870" is said to achieve deposition rates as high as 1,800 per hour. Besides metering and dispensing conformal coating materials, this model handles electrically conductive epoxies, resins, protective junction coatings, and thermally conductive materials. Die

and wire bonds on substrates are protected from damage during subsequent operations. WRITE: L.A. Wood, Laurier Associates, Inc., Dept. CN, Executive Drive, Hudson, New Hampshire 03051 U.S.A.

HEALTHCARE EQUIPMENT

SNAP CLAMP FITTING FOR FLEXIBLE TUBING - This molded plastic fitting provides a simple, fast, leakproof means of clamping onto and piercing the wall of flexible tubing without cutting the tube in half. A simple design, speed and simplicity of application, are the product's chief advantages. Using simple, interlocking ratchet teeth, the clamp attaches to tubing and pierces it with a special metal device when the clamp is closed. Medical personnel involved in asepsial fluid communications, and agricultural or industrial technicians using low pressure and flow fluid communication, are the main end-users. Retail price for these disposable clamps ranges from \$.60 to \$2.75 FOB North Springfield, Vermont. Distributors and licensees are sought. WRITE: Gayland M. Williams, Williams, Inc., Dept. CN, 3 Maple Street, North Springfield, Vermont 05150 U.S.A.

NONSURGICAL TREATMENT FOR BLADDER STONES - Urologists are referred to this nonsurgical means of removing bladder stones through electrohydraulic lithotripsy. The "SD-1 Lithotriptor" is designed to reduce bladder stones into fragments small enough for removal by simple irrigation; to do this, the unit generates sharp, high amplitude hydraulic shock waves which shatter the stones. Soft body tissue, because of its flexibility, is not affected by the process. Price ranges from \$4,000 to \$5,000. WRITE: Patrick Gaffney, International Catheter Corporation,

Dept. CN, 2040 Milburn Avenue, Maplewood, New Jersey 07040 U.S.A.



MINIATURE OXYGEN UNIT FOR EMERGENCY FIRST AID - This firm has developed what is said to be the first low cost, lightweight, emergency oxygen unit which is not a pressurized tank. Accidental explosions, leaks, and malfunctions are eliminated by a canister of solid state chemical designed to produce oxygen at the turn of a valve. The unit generates 6 standard liters of oxygen per minute for at least 15 minutes. An emergency aid in cases of heart attack, shock, asthma, smoke or gas inhalation, and electrocution. Oxygen mask, 6 ft (1.8 m) of plastic tubing, and the canister are priced at \$17. Distributors wanted. WRITE: Norman C. Eisenstat, Green Cross Solid State Oxygen, Inc., Dept. CN, 925 Penn Avenue, Pittsburgh, Pennsylvania 15222 U.S.A.



ELECTRONIC STETHOSCOPE AND TEACHING AID - According to this manufacturer, examination of cardiac and respiratory functions is greatly improved by the Model ES-4 Electronic Stethoscope. This new diagnostic aid can select frequencies from 10 to 1200 Hertz and amplify or alternate as desired. The ESTS-4 (Electronic Stethoscope and Teaching System) permits an instructor and up to 8 students to listen simultaneously to the same sound. Both models are self-contained, battery powered systems designed to be rugged, lightweight, and dependable. Price range is \$300 to \$900. Recommended for medical personnel and instructors. Company is seeking overseas

distributors. WRITE: Donald R. Hawkins, Telemetrics, Dept. CN, P.O. Box 288, 172 Commercial Street, Portland, Maine 04112 U.S.A.

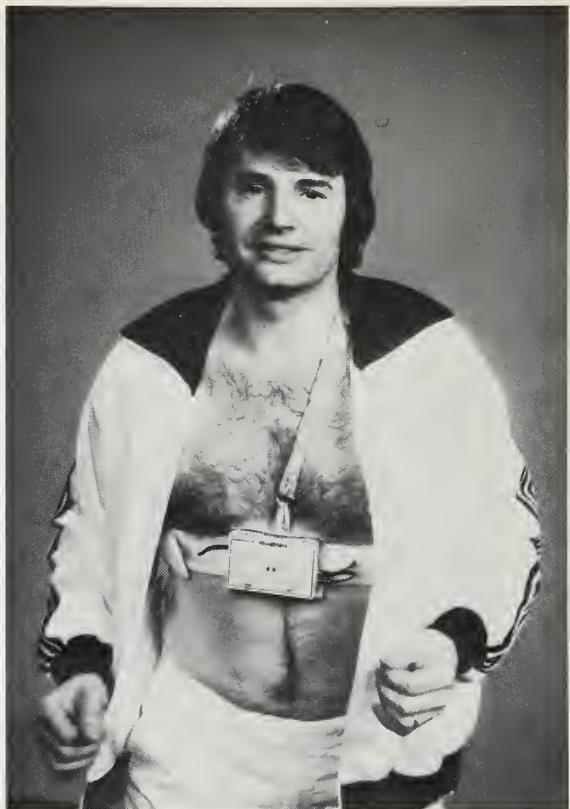
FOOT POSITIONERS FOR PREVENTING

BED SORES - The unique, fully adjustable "Foot Drop Stop" helps to prevent bed sores by elevating a bed-ridden patient's heel off the bed, thus eliminating unnecessary pressure, heat, and moisture. The unit also incorporates a special stirrup to prevent foot drop or foot rotation (in which the feet, through inactivity, drop into positions away from the body or to the right or left) for long-term, comatose, or

flaccid patients who lack control of foot muscles. The manufacturer says this product, intended for use with one patient for the duration of treatment, is fire-retardant, easy to use, and inexpensive. Priced from \$15 to \$20. WRITE: Donald C. Spann, Span-America, Inc., Dept. CN, P.O. Box 5231, Greenville, South Carolina 29606 U.S.A.

DIGITAL HEART RATE MONITOR - This solid-state heart monitor offers instant and precise digital readout of the user's pulse rate, providing beat-to-beat information for clinical or laboratory use. The convenient transducer is attached to almost any finger and secured by an adjustable finger clip; a touch of a button then displays the subject's heart rate on an illuminated readout panel. Said to be lightweight and reliable, this battery-operated unit sells for \$345. WRITE: Max Wastl, Lafayette Instrument Company, Inc., Dept. CN, North 9th Street and Sagamore Parkway, P.O. Box 1279, Lafayette, Indiana 47902 U.S.A.

MINIATURE TRANSMITTER FOR EMERGENCY HELP - This matchbook-size pendant is actually a miniature (1 oz) transmitter that can initiate a series of telephone calls for help during emergency situations. Worn around the neck, "Microlert" is instantly available for heart attacks, medical alerts, accidents, robberies, and other emergencies. A touch of a button activates a receiver up to 300 ft (90 m) away which will make an unlimited number of preprogrammed, pretaped telephone calls for help. "Microlert" will not send false alarms if rolled upon during sleep. Retails from \$695 to \$995. WRITE: J.L. Stamp, Jr., American Microlert, Inc., Dept. CN, 3030 Empire Avenue, Burbank, California 91504 U.S.A.



HEARTRATE MONITOR DURING EXERCISE - "Exersentry" is a simple, highly reliable, heart rate monitor designed for cardiac patients pursuing exercise programs. The unit includes a digital display of heartrate and may be programmed to warn the user when heartrate exceeds or falls below predetermined limits. The small, lightweight monitor straps around the user's chest during use. Besides cardiac patients, exercisers interested in maintaining cardiovascular fitness are the chief end-users. Price, \$200 to \$225. WRITE: John W. Andreoli, Jr., Resironics, Inc., Dept. CN, Middle Avenue at 3rd Street, Wilmerding, Pennsylvania 15148 U.S.A.

TV SYSTEM FOR INSTANT ACCESS TO X-RAY FILMS - According to the manufacturer, this is an all-electronic solid-state television

system designed to provide instant recording, storage, transmission, and playback of x-ray films with a quality video picture for medical diagnoses. "Video X-Ray Systems" are intended to replace the slower, more cumbersome minification x-ray storage systems currently used by many medical facilities. Price range is \$10,000 to \$100,000. WRITE: R.R. Brinkmann, Jr., Tele-Medics, Inc., Dept. CN, 3530 Forest Lane, Suite 98, Dallas, Texas 75234 U.S.A.

MULTIPURPOSE MEDICAL EXAMINATION

TABLE - The "Trend IV" Medical Examination Table assumes a wide variety of positions for various medical purposes. Power-operated height and tilt, footrest and back, respond automatically to simple pedal controls, moving the patient into the position most suited for examination. Pediatric positions (for both infants and small children), an obstetric/ gynecological



position, table and chair positions (at any height from 25 to 42 in (63.5 - 107 cm)) are some of the many possibilities. The firm says it reduces doctor's fatigue and improves patient's comfort. Price is \$4,000. WRITE: Dick Wuebker, IE Industries, Dept. CN, 115 N. Ohio Street, Minster, Ohio 45865 U.S.A.

IMPROVED IODINE FORMULA - "BPS

Povidone-Iodine" is said to possess the virtues of ordinary iodine without the hazards. This iodine is formulated for rapid, broad-spectrum action against disease-causing bacteria, viruses, spores, fungi, and yeasts. The complex has a low toxicity, however, and is non-irritating to human or animal tissue, mucous membranes, and wounds. Because it is soluble in water and common organic solvents, it is useful in the formulation of solutions, ointments, lotions, and creams. Chief competitive advantages include: more neutral higher pH factor, greater stability, longer shelf life, and lower cost. Available in Hand Wash, Shampoo, Femidine Douche, and Whirlpool Concentrate.

WRITE: Anthony J. Piciulo, A.V.P.
Pharmaceuticals, Inc., 10305 Main Street, Clarence, New York 14031 U.S.A.

NORMAL/ELEVATED HUMAN LIPID STAN-

DARD AND CONTROL SERUM - For the exacting requirements of a clinical lab's quality control systems, this firm offers a Human Liquid Triglyceride Standard and Control Serum ("RADCON TGSC") made from pooled human serum. The lipid constituents are stabilized for over one year and may be stored at 2-8 degrees C or frozen for 14-18 months. The serum has no turbidity and needs no reconstitution or dilution before use. The manufacturer says "Radcon TGSC" is assayed for triglycerides (by

fluorometric, enzymatic, colorimetric, and nephelometric methods), cholesterol, total lipids, and electrophoretic pattern by qualified reference laboratories. The company is seeking distributors and agents. Price is \$31.00. WRITE: A. William Smith, Radcon Laboratories, Inc., Dept. CN, P.O. Box 15540, Las Vegas, Nevada 89114 U.S.A.

of vacuum lines and, for added safety, includes a positive interrupt of the vacuum should fluids be drawn toward the vacuum line. Costly vacuum system decontamination is thus avoided. The lightweight, compact unit sells for \$250. WRITE: Michael K. Bender, Spectroderm International, Inc., Dept. CN, 2711G Dorr Avenue, Fairfax, Virginia 22030 U.S.A.

LABORATORY AND SCIENTIFIC INSTRUMENTS

TESTING UNIT FOR VIBRATION AND NOISE

SOURCES - The "Model 660 Dual-Channel FFT Analyzer" provides a simple, compact "field laboratory" for locating and evaluating vibration and noise sources in a range of applications. It offers on-the-site calculations of such functions as power spectra, correlation, transfer function, probability histograms, and impulse response in ranges from 0-1 Hz through 0-100 KHz. The Model 600 is said to be the first portable unit of its kind with integral microprocessor computation. Mass storage on digital tape and modal analysis are optional. Chief end-users: 1) manufacturers of turbines, engines, etc.; 2) vehicle and aircraft manufacturers; 3) nuclear reactor personnel; 4) navy laboratories; 5) those concerned with industrial noise. Price range is \$33,000 to \$40,000. WRITE: R. Rothschild, Nicolet Scientific Corporation, Dept. CN, 245 Livingston Street, Northvale, New Jersey 07647 U.S.A.

ANTICONTAMINATION GUARD FOR VACUUM LINES - According to the manufacturer, the "Vacuum Guard II" has applications in clinical and industrial laboratories where vacuum lines are commonly used. This product can be used when aspirating biological fluids and is also said to be ideal for radioimmunoassay. It provides constant air filtration



DIGITAL ELECTRONIC MICROMETER - The "Q-Mike" is said to be the first electronic micrometer with an integrated digital display. Rechargeable Nickel Cadmium batteries power the instrument's fast, accurate measurements over a 1 1/2 in (38mm) range. A digital display shows all measurements and is accurate to within .0001 in (2 microns). A special feature allows the unit to be reset to zero at any dimension for comparative measurements. One switch will hold readings on the display as long as desired and another allows the operator to choose English or Metric measurements. The company is seeking agents and distributors worldwide for this micrometer priced at \$300. WRITE: John W. Balliett, Quality Measurement Systems, Inc., Dept. CN, 2555 Baird Road, Penfield, New York 14526 U.S.A.



NUCLEAR SCALER FOR DETECTION OF RADIOACTIVE MINERALS - The "SC-700B Nuclear Scaler," with digital readout display, is designed to allow improved statistics when measuring nuclear radiation in the field. Individuals and companies involved in geophysical exploration will find it ideal for locating uranium or other radioactive sources in soil, gas, or water. Sold complete and ready for use, the unit includes battery charger and either Gamma or Alpha Particle detector. Adapter Heads are available for scintillation counter, emanometry, or work from the air or a car. WRITE: Barry M. Keene, Cryogenic Research Company, Inc., Dept. CN, 1900-A 55th Street, Boulder, Colorado 80301 U.S.A.

PORTABLE INFRARED "TELEVISION" SYSTEM - The portable Model 510 "Infrared Thermal Imaging System" will scan any object or scene and convert it into a television-like picture in which differences of temperature are indicated by different levels of brightness. The product consists of an Infrared Camera Unit, a Control and Display Unit, and accessory equip-

ment. Self-contained and battery-operated, the Model 510 is small and light enough for one person to carry, but offers high quality performance at low cost. Optional telescopic, microscopic, and wide angle lenses are also available. Suggested for utility companies, high volume manufacturers, and engineering labs. WRITE: Gordon J. Burrer, Infra-metrics, Inc., Dept. CN, 225 Crescent Street, Waltham, Massachusetts 02154 U.S.A.



VERSATILE, LOW COST POTENTIOMETRIC RECORDERS - These Potentiometric Recorders are designed to provide reliable, flexible instrumentation at a relatively low cost. Possible applications include use with analytical instruments, computers with analog output, audiometers, measuring devices such as gear testers, etc. Models are available with single, dual, or triple channels and chart widths of 125 cm (50 in) or 250 cm (100 in). Suggested for medical labs, universities, hospitals, research and quality control labs. Price range is \$495 to \$1,195. WRITE: Malcolm S. Kennedy, Curken Scientific Inc., Dept. CN, 85 Main Street, Suite #3, Danbury, Connecticut 06810 U.S.A.

TESTING DEVICE FOR FLAMMABILITY OF MATERIALS - This "Oxygen Index Flammability Tester" is said to provide a precise method of testing the flammability of plastics, textiles, paper, etc. The device feeds a regulated amount of oxygen and nitrogen into a sealed chamber containing the material to be tested. By changing the mixture of gases, the firm says, the minimum concentration of oxygen needed for combustion - the "Oxygen Index" - can be determined to within a few percentage points. Commercial laboratories, factories producing synthetic materials, government testing facilities, are a few of the possible users. Price is \$1,950 to \$3,000. WRITE: Robert F. Moore, MKM Machine Tool Company, Dept. CN, 4121 Highway 31 East, P.O. Box 309, Jeffersonville, Indiana 47130 U.S.A.

DOORLESS "EASY ACCESS" REFRIGERATOR - This refrigerator, instead of doors, uses a "curtain of air" to keep the cooled air inside it. This feature permits the comfort of a reach-in, temperature-controlled workspace, with no doors to interfere with movements or observations of laboratory personnel. It occupies 12 sq ft of floor space (1.08 sq m) and provides 40 cu ft (1.08 cu m) of refrigerated space. Storage uses include chemicals and reagents, caged animals and aquariums, animal cadavers for medical uses, electrophoresis cells, fraction collectors, chromatography columns, etc. Suggested for laboratories involved in medical and scientific research. Price is \$4,000. WRITE: C.J. Wherrett, Sherer Environmental, Division of Kysor Industrial Corporation, Dept. CN, 910 W. Industrial Road, Marshall, Michigan 49068 U.S.A.

TEMPERATURE INDICATORS USE CHANGING COLORS FOR NON-DESTRUCTIVE TESTING -

These thin, flexible sheets and small dots use cholesteric crystals which indicate temperature shifts by changing colors. "Sensorsheet" indicates or maps changes within a specific temperature range of 2 degrees C by gradual color shifts from deep red to violet. "Sensor-spot" remains one brilliant color until a predetermined temperature is reached, then becomes colorless. Suggested for manufacturers of novelties, appliances, etc. and for use in non-destructive industrial testing. This product offers long life, accuracy, stable colors, flexible size and shape. Price range: 10 cents to \$100. WRITE: Henry Kieltyka, Ashley-Butler, Inc., Dept. CN, 208 Route 206 South, Somerville, New Jersey 08876 U.S.A.



COMPUTERIZED MICROSPECTROPHOTOMETER - The "Nanospec/10" measures, compares, and records spectral data (ultra-violet through near infrared) from a variety of specimens at high magnification in an optical microscope. The firm says it is the only machine of its kind which adapts to all microscopes with standard camera ports. Its computerized design can compare a variety of specimens (or different areas of one specimen) as

small as one micrometer or as large as several centimeters. The (optional) SDP-2000 Data Processor gives this convenient "single-beam" unit the advantages of a "double-beam" system. Suggested for biologists, physicians, metallurgists, industrial scientists, etc. Price ranges from \$7,690 to \$20,000.

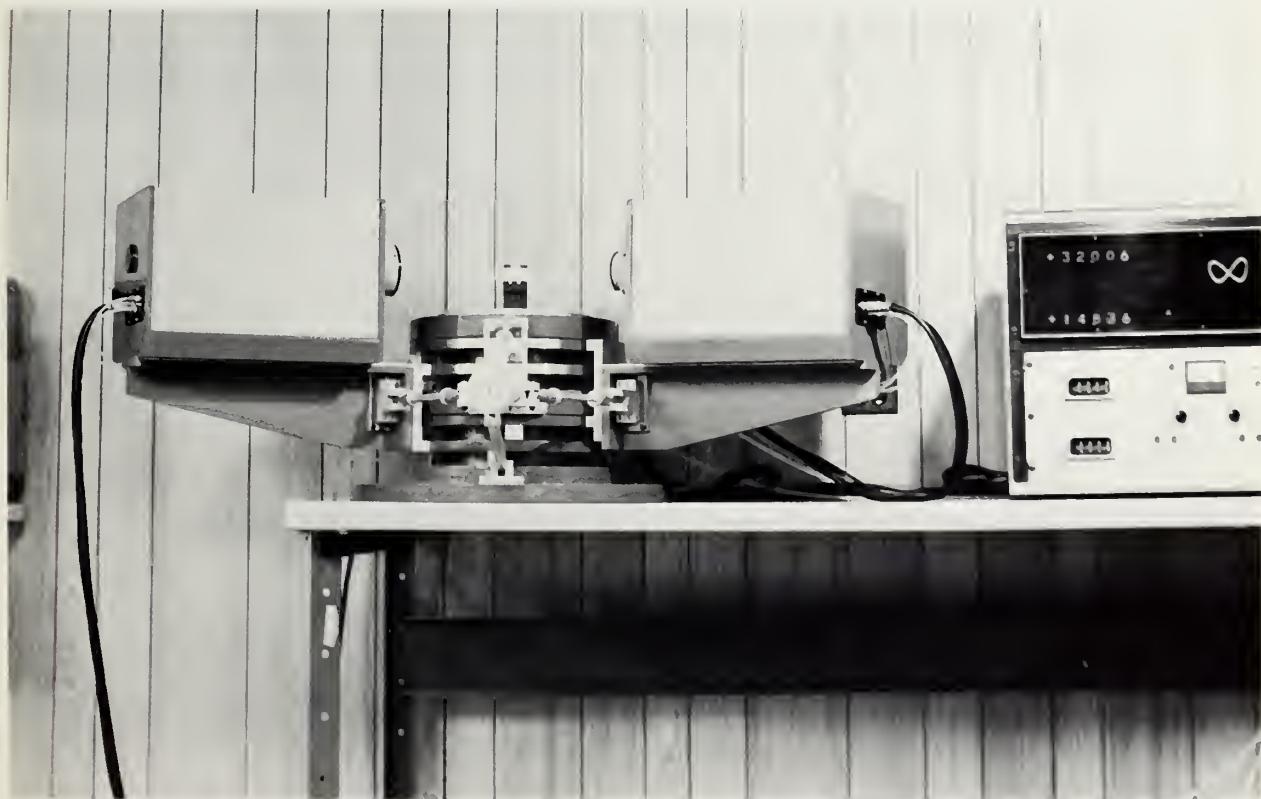
WRITE: Vincent J. Coates, Nanometrics, Inc., Dept. CN, 1030 W. Maude Avenue, S-502, Sunnyvale, California 94086 U.S.A.

TOTALLY AUTOMATIC ELLIPSOMETER - The Model AE-1 Automatic Ellipsometer measures large, rapid changes in the polarization of light reflected from rapidly changing surfaces or ones on which films are altering or growing. It has research and industrial applications wherever the optical characteristics, thickness, or composition of a surface, thin film, or transmitting medium must be determined. The unit offers automatic, continuous

balancing and a tracking rate of one degree per second. Its automatic features require less skilled operators, the company says, and result in significant long-term savings in manpower needs. Price is \$50,000. WRITE: Raymond T. Lambrecht, Karl Lambrecht Corporation, Dept. CN, 4204 N. Lincoln Avenue, Chicago, Illinois 60618 U.S.A.

LAND TRANSPORTATION INDUSTRIES EQUIPMENT

FLEXIBLE ELECTRICAL CABLE ASSEMBLIES FOR TRUCK-TRAILERS - Truckers will be interested in these electrical cables designed to extend or retract with movements between tractor and trailer in order to prevent tangles or kinks and to insure longer life. Cable assemblies are available in different sizes and with or without connectors. Cables are designed to resist oil, ozone, water, and weather, remaining flexible to -40 degrees



(F or C). Company literature is available with both English and metric specifications. Product lists from \$25 to \$80. Distributors sought. WRITE: Phillip M. Ramos, Jr., Phillip's International, Dept. CN, Export Division, Building #25, 11823 E. Slauson Avenue, Santa Fe Springs, California 90670 U.S.A.

AMPHIBIOUS VEHICLE FOR ALL TERRAINS -

The four-passenger "RIM" is an amphibious vehicle with 6-wheel drive designed to travel over almost any terrain. Its speed in water ranges from 2 to 5 miles (3-10 km) per hour and its maximum land speed (depending upon the engine specified) is either 20 or 40 mph (32 or 64 km). The "RIM" navigates mud and snow with ease and climbs slopes up to 45 degrees. Its unbreakable poly-ethelene body and tough construction are engineered to carry loads up to

1,000 lbs (450 kg). Accessories, including windshields, canvas tops, snow plows, and trailers, are available. Suggested for the military, sportsmen, ranchers, farmers, oil and utility companies, etc. Price, \$2,700. WRITE: Sidney Wallach, Recreatives Industries, Inc., Dept. CN, 60 Depot Street, Buffalo, New York 14206 U.S.A.

PETROLEUM ADDITIVE IMPROVES COMBUSTION QUALITIES - When added to hydrocarbon-based fuels (gasoline, diesel oil, heating and industrial fuels, aircraft fuel, etc.), "NRG" is said to reduce fuel consumption by 10 percent, lower exhaust emissions by 20 percent, and minimize combustion deposits without adverse side effects. One part of "NRG" per 1,600 parts of fuel acts as a catalyst, the manufacturer says, which improves the combustion qualities of



hydrocarbon fuels so well that fuel costs may be reduced by 15 percent. Price is \$24 per gal (3.8 l). WRITE: Frederick J. Renz, Jr., NRG International, Inc., Dept. CN, 1985 Oneida Street, Clayville, New York 13322 U.S.A.

MACHINERY AND EQUIPMENT FOR PRODUCING PLASTICS PRODUCTS



UNIT METERS/MIXES COLOR CONCENTRATES FOR MANUFACTURE OF PLASTICS - Installation of the "Megacolor Meter/Mix" is said to be simple and it allows color concentrates to be added to base resins at the most advantageous point in processing plastics. The proportioning unit mixes as it measures colorant, thus avoiding separation or striation due to different material densities or particle sizes. The unit meters high ratio concentrates with 1 percent accuracy and permits quick changes of color without stopping equipment. Sells from

\$900 to \$1,400. Agents and licensees will be considered. WRITE: Charles L. Andrews III, Megacolor Inc., Dept. CN, Route 9, Box 127-A, East Broad Street, Extension, Statesville, North Carolina 28677 U.S.A.

MARINE AND RELATED EQUIPMENT

KIT FOR DO-IT YOURSELF MARINE

SIGNAL FLAGS - The "International Signal Flag Kit" is a new money-saving idea for the amateur yachtsman. With this kit, boaters can sew their own set of 40 international code flags for less than half the price of prefabricated flags. The kit includes simple instructions, patterns for all 40 flags, instructions for purchasing material, and a special book containing over 300 signal flag hoists cross-referenced for easy identification for signaling. Sells for \$9.75. Inquiries from distributors and dealers are welcomed. WRITE: D.A. Koneazny, Spindrift Sales, Dept. CN, P.O. Box 366, Sheffield, Massachusetts 01257 U.S.A.

PROTECTIVE LAGGING COMPOUND - This compound is primarily used for insulating superheated steamlines, cold water lines, boiler heads, etc., on ocean vessels, off-shore drilling rigs, industrial refineries, etc. It is a tough, flexible, monolithic lagging compound combining three important properties: 1) it is nonflammable for safety; 2) it reduces heat conduction by as much as 30 percent, and resists penetration or damage from oil, fuel, and fresh or salt water; 3) it is tough and durable to reduce the cost of constant relagging. The compound is made in two parts (like epoxy resin) combined when used. Price is \$27.50 to \$35 per gal (3.8 l). WRITE: Carter L. Wilson, Resins Research Corpora-

tion, Dept. CN, 3510 County Street, Norfolk, Virginia 23513 U.S.A.



COMPACT SCANNING SONAR SYSTEM - The manufacturer believes this to be the smallest scanning sonar system commercially available. Using narrow beams of high frequency sound, the Model SS90 Sonar detects underwater obstacles or schools of fish and displays them with very high resolution on a cathode ray tube screen. This product incorporates a stabilized transducer for bad weather and an ability for automatic sector scanning for the first time in a small system. Its compact size makes the "SS90" less expensive, simpler to learn, and easier to install than comparable systems. Suited for small fishing vessels and pleasure craft.

WRITE: Nathan Roundy, Western Marine Electronics, Dept. CN, 905 Dexter Avenue North, Seattle, Washington 98109 U.S.A.

METALWORKING AND FINISHING EQUIPMENT

CONTINUOUS SPOOLER FOR COPPER AND ALUMINUM WIRE - The new "Mark VII Continureel Spooler" is designed to wind copper or aluminum wire (hard or soft) from a wire drawing machine at continuous speeds up to 7,500 ft

per minute (2,250 m). Reels up to 31 in (79 cm) diameter and 18 in (46 cm) overall width can be mounted on the parallel and expanding arbors. A special optional feature winds wires with both wire ends accessible for welding and other purposes. The "Continureel Spooler" is engineered to meet noise and safety requirements stipulated under U.S. laws. Price range is \$100,000 to \$140,000.

WRITE: H.W. Peterson, Syncro Machine Company, Dept. CN, 611 Sayre Avenue, Perth Amboy, New Jersey 08862 U.S.A.

KIT REPAIRS WORN MACHINE SHAFTS

Worn metal shafts can be built up again with this "Cryotherm Process Kit," a low-temperature process using advanced spray-powder technology. With temperatures no greater than 250 degrees C, the company says, a variety of coatings may be applied to base metals to produce corrosion and wear resistant surfaces. The low temperatures used prevent damage to the parts being repaired. Typical repair time on 5 to 8 cm shafts is less than 10 minutes. Any size shaft may be handled. The complete kit, with torch and spray powders, is \$395.

WRITE: W. Carney, Nassau Research Corporation, Dept. CN, 1471 Jersey Avenue, Box 175, North Brunswick, New Jersey 08902 U.S.A.



MINING AND EARTHMOVING EQUIPMENT

MINING PROBE SHOWS HEADING AND INCLINATION OF BOREHOLES - This firm offers an accurate, simple-to-use logging tool, designed mainly for mineral exploration, which displays both the magnetic heading and inclination of any non-ferrous borehole. Heading information is accurate to within 1 degree, the company says, and inclination output valid to within 0.1 degree. The "Driftometer" offers increased speed over conventional survey techniques since it requires no instrument photography, film development, or data reduction at the surface. Designed for non-ferrous mining or mineral exploration, this unit sells for under \$10,000. WRITE: John Lewis, Harnessed Energies, Inc., Dept. CN, 63 Great Road, Maynard, Massachusetts 01754 U.S.A.

PRINTING, GRAPHIC ARTS EQUIPMENT, SYSTEMS AND SUPPLIES

LAMINATED CARDBOARD ADHERES TO MAGNETIC SURFACES - "Magnagloss" is a laminated cardboard coated on two sides to make it adhere to magnetic surfaces. It can be printed on either side by ordinary sheet-fed press operations such as offset, letterpress, or silkscreen processes. Potential end-users include manufacturers of novelties, games, toys, educational aids, maps, and sales promotion aids. The firm says samples and prices are available on request. Agents are sought. WRITE: Arthur A. Frankel, P.L. Thomas Paper Company, Inc., Dept. CN, 393 7th Avenue, New York, New York 10001 U.S.A.

PROCESS CONTROL INSTRUMENTATION AND EQUIPMENT

SOLID-STATE TEMPERATURE CONTROLLERS - The "Series 76" solid-state controllers were designed to furnish quality

process control instrumentation at moderate cost with an operational range of -100 to +2500 degrees F (-73 to 1,371 degrees C), these temperature controllers have nearly limitless applications. According to the manufacturer, a versatile selection of set-points, output forms, control modes, alarms, and display features provides flexibility otherwise available only in costlier instruments. WRITE: C.F. Seifert, The Partlow Corporation, Dept. CN, Campion Road, New Hartford, New York 13413 U.S.A.



ENERGY-SAVING OXYGEN SENSOR MONITORS INDUSTRIAL FURNACES - This oxygen sensor is said to maintain peak efficiency in industrial furnaces by providing direct and continuous measurement of the amount of oxygen in the furnace atmosphere. Using the electrolyte properties of zirconium oxide, the sensor works from a position in the furnace wall

in direct contact with combustion gases. No gas samples need to be taken from the furnace for testing. The manufacturer says significant fuel savings result from the carefully controlled air-to-fuel ratio. Average operational life is six months in furnaces heated from 750-1,550 degrees C. (1,350 degrees - 2,790 degrees F). Suggested for use by firms using combustion in operations: steel and glass melting, founding, annealing, etc. Price is \$425 to \$550. WRITE: Richard T. Sproule, Corning Glass Works, Dept. CN, Houghton Park, Corning, New York 14830 U.S.A.

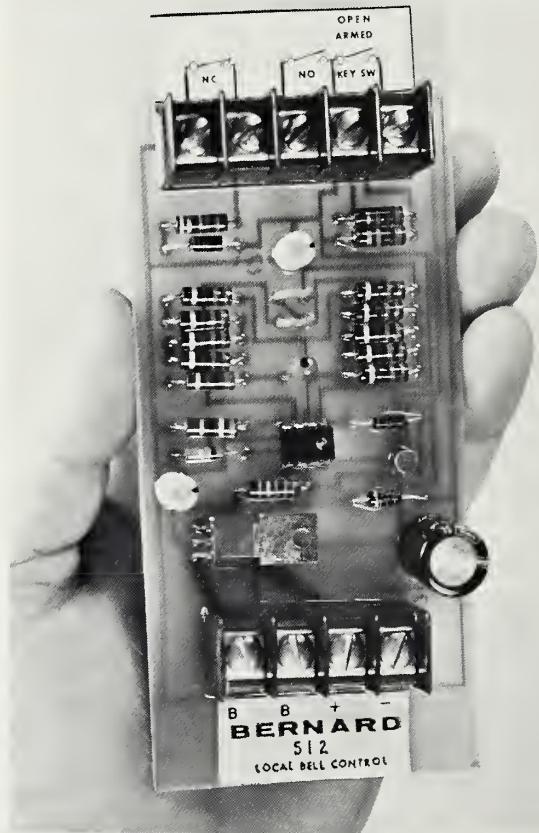
RESTAURANT, FAST FOOD AND CATERING AND RELATED EQUIPMENT

SEMITAUTOMATIC GLASS WASHER UNIT WITH INTEGRAL WATER HEATER - This company is introducing a completely submersible, motorized glass washer which heats its own water. Completely portable, the "Bar Maid" will fit any wash tank and requires no plumbing to operate. The unit includes a 1/4 HP motor which connects to any 115/220 volt outlet, a stainless steel or injection molded casing, and five removable brushes which can be replaced by other brushes for cereal bowls and dishes. Bars, restaurants, hospitals, clubs are suggested end-users. The self-cleaning "Bar Maid" sells for \$300. Distributors and agents are sought. WRITE: Bobby Suazo, Bar Maid Corporation, Dept. CN, 1276 West Third Street #605, Cleveland, Ohio 44113 U.S.A.

SAFETY AND SECURITY EQUIPMENT

BULLET-PROOF VESTS - Softer than similar vests and light enough to be worn with comfort, "Top-Line Soft Body Armor" is said to provide the user with protection from common

handguns including 44 Magnums, 22 Magnums, and 9 mm submachine guns. It is constructed from the strongest ballistic material available for soft vests and covered with sealed nylon to repel water and odors and to prevent stains. The contours provide increased protection around the heart and lung areas. The vests adjust for a tight, comfortable fit and are available in models for both men and women. Suggested for police, military, security or dangerous occupations. Priced from \$60 to \$500. Agents are sought. WRITE: Dan W. Silvers, Silvers and Associates, Dept. CN, 21711 West 10 Mile Road, Suite 122, Southfield, Missouri 48075 U.S.A.



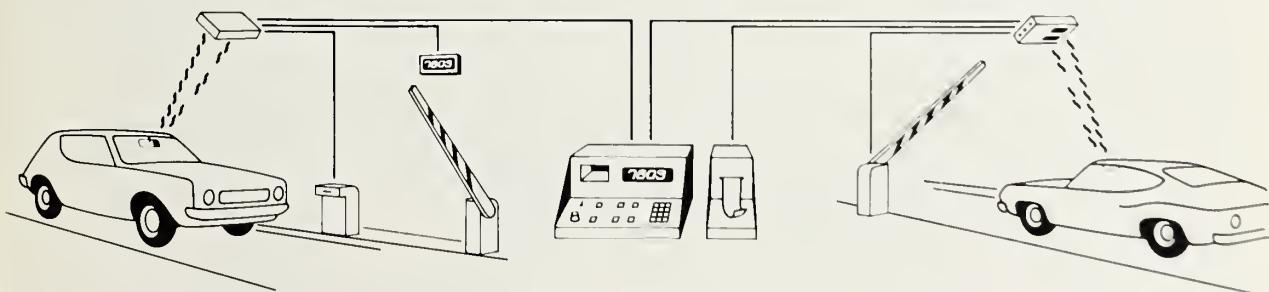
BURGLAR ALARM CONTROL MODULE - This Model 512 Alarm Control is a complete burglar alarm control module linking the power supply, the warning bell or

horn, the normally closed loop of alarm contacts, normally open alarm contacts, and the key switch to form an integrated system. The unit also times the alarm period after actualization; options for the timing periods are 2.5 - 5.0 minutes, 7.5 - 15.0 minutes, and 15 - 30 minutes. A unique feature prevents damage to the unit if the input power leads are accidentally reversed. Suggested for use in industrial, commercial and residential facilities. The company is actively seeking agents and distributors. Price is \$15.50 to \$21.35. WRITE: Bernard Wechsler, Bernard Company, Dept. CN, 2831-D White Star Avenue, Anaheim, California 92806 U.S.A.

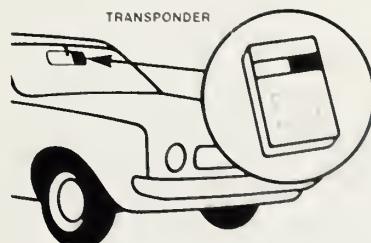
AUTOMATIC SYSTEM MONITORS USE OF PARKING FACILITIES - The "Kilo Remote Identification System" combines driver convenience with strict control of leased parking facilities. By eliminating magnetic cards, ticket dispensers, and cashiers which slow operation, the system can handle up to 900 cars per hour (at 25 kph) in

each approach lane in the parking facility. A small transponder mounted on the windshield uses infrared light to signal a vehicle's assigned number to the control system; the vehicle's identification is checked automatically before the entrance gates are opened. Charge accounts are possible. Lessee occupancy can be inventoried at any time and particular vehicles forbidden entrance when necessary. Price is \$25,000 and up. WRITE: Michael Denton, Kilo Corporation, Dept. CN, 550 West Fort Street, Detroit, Michigan 48226 U.S.A.

ELECTRONIC BURGLAR ALARM - Designed to protect homes, schools, offices, or commercial sites, the "Sound Discrimination Audio Switch" is a self-contained, solid-state device that detects burglaries and other intrusions by selectively picking up the sound of forcible breaking and entering. The normal background of ambient sounds is totally ignored by the alarm. According to the firm, the unit's detection capacity



For monthly parking the Kilo Remote Identification System automatically identifies each lessee, then validates and controls each entry and exit, and requires no action by the driver.



ordinarily ranges from 1,000 to 2,000 sq ft (90-180 sq m), although this varies somewhat with operating conditions. Whether for an office or private residence, the switch's unobtrusive "low profile" is said to adapt perfectly to established decors. Sells from \$35 to \$40. WRITE: Robert Miller, Bluegrass Electronics, Inc., Dept. CN, 201 N. Walnut Street, La Grange, Kentucky 40031 U.S.A.

AUTOMATIC FIRE EXTINGUISHERS - These automatic fire extinguishers contain a special chemical extinguishing agent for use in situations where dry chemicals or water is undesirable. Easily installed, the extinguishers require no piping or electrical connections to operate. More economical than a piped system, these units are available in two sizes for total floor coverage or "spot" protection. The



"SCRAMBLER" DEVICES FOR COMMUNICATIONS SECURITY - The XL-280 series of communications security devices uses a unique wide-deviation frequency-displacement scrambling technique which, this firm says, can not be decoded by conventional means. Designed for voice and FAX scrambling over AM, FM, SSB, and telephone systems. The unit uses 18 billion nonlinear coding combinations and has a code depth (repetition cycle) of 1,165 hours. The manufacturer sums up the unit's advantages: high security; modest price; small size and weight; ease of installation and operation. Price is \$1,800 to \$2,500. WRITE: Arnold M. McCalmont, Technical Communications Corporation, Dept. CN, 56 Winthrop Street, P.O. Box 1070, Concord, Massachusetts 01742 U.S.A.

units are rechargeable after use and include a visual pressure gauge for instant inspection. Activates at 165 degrees F (74 degrees C). The price range is \$84 to \$121. WRITE: G.G. Romero, Red Comet International, Inc., Dept. CN, P.O. Box 272, Littleton, Colorado 80160 U.S.A.

INKLESS FINGERPRINTING KIT - The "DACTEK" Model FP110 is a lightweight, portable, self-contained fingerprinting system which avoids messy inks by using two chemicals - one in the pad and another in a special developer spray. During fingerprinting, the two chemicals combine to develop black, non-smearing, permanent print impressions. These prints are said to be acceptable for purposes of security

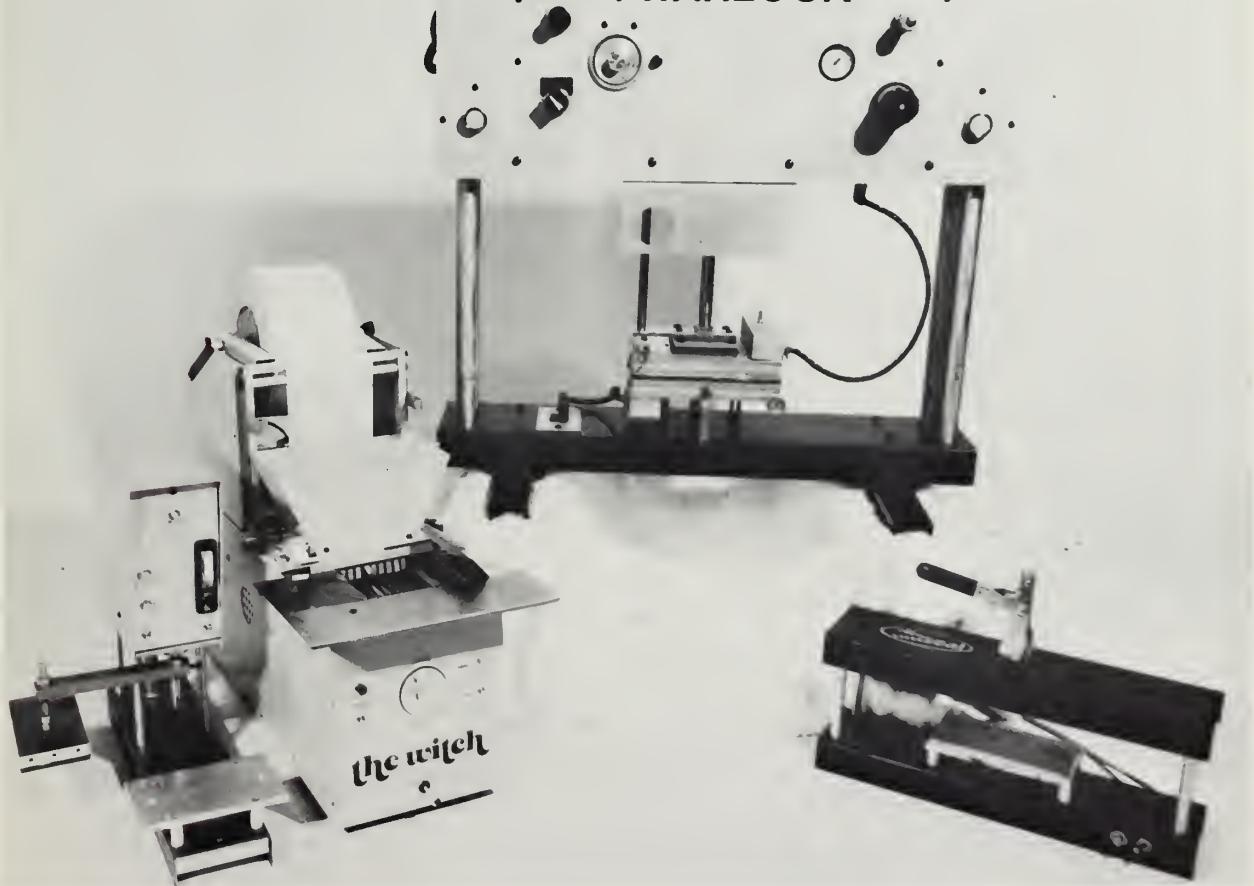
and law enforcement. Use of the kit is simple and clean. Because prints are consistently definitive, fewer errors and rejections tend to reduce overall costs. The prints are ideal for drivers licenses and Identification cards, since they dry immediately. Price ranges from \$24.95 to \$249.95. WRITE: Louis B. Meadows, DACTEK International, Inc., Dept. CN, 5301 Balboa Boulevard, Suite L-9, Encino, California 91316 U.S.A.

SPECIALIZED MACHINERY AND EQUIPMENT FOR PRODUCTION

TWO-PART SYSTEM APPLIES MEDALLIONS, LABELS, EMBLEMS TO TEXTILES - Designed for manufacturers of garments and soft goods, the "Witch" applies

a special adhesive coating to the backside of medallions, labels, emblems, etc., while its complement - the "Warlock" heat sealer - adheres these to clothing, linens, and other products. This system is said to lower power consumption and reduce adhesive wastes yet still provide strong adhesive bonds that resist repeated laundering or dry cleaning. The "Warlock" Heat Sealer is easily adapted to specialized jobs and features light weight, simple design and operation. Cost: \$1,500. WRITE: Jack Kutzenco, ATRON, Inc., Dept. CN, 1350 Broad Street, Rahway, New Jersey 07065 U.S.A.

**THE
WARLOCK**



LIGHTWEIGHT GLASS WORKING PLIERS -

Designed primarily as an aid to glass working, the "Gold Tip" No. 178 pliers have numerous applications in tasks which require a firm but gentle grip. A special high-strength, nonmetallic material gives these pliers the strength of similar-sized metal pliers but only half the weight. The lighter weight reduces fatigue and also helps prevent breakage of glass when the pliers are accidentally dropped. To guard against crushing or chipping glass products, a built-in control feature automatically limits closure. Said to be ideal for use with glass up to 1/4th in thick (.63 cm), these pliers sell from \$5.00 to \$10.00 each. WRITE: Jack Dower, The Fletcher-Terry Company, Dept. CN, Spring Lane, Farmington, Connecticut 06032 U.S.A.



PRODUCT PACKAGING MACHINE - The "Model S-2026 Vacuum Forming Machine is said to be the lowest priced unit of its kind available. Used to form plastic "shells" for product packaging, the machine melts plastic film and shapes it into the desired

form around a product with a controlled vacuum. Various plastics may be used (vinyl, polyethylene, etc.) and both "skin" and "blister" packaging are possible. The unit's semi-automatic operation is said to be simple to learn and also reduces energy usage by heating only when required. Price is approximately \$1,800 FOB North Hollywood, California. Suggested for makers of consumer goods and industrial products. WRITE: Gene H. Soltys, Soltys Associates, Dept. CN, 1741 N. Ivar Avenue, Suite 106, Los Angeles, California 90028 U.S.A.



AIR-POWERED LACING MACHINE FOR JOINTS IN CONVEYORS AND OTHER BELTS -

The manufacturer says that this machine, designed to lace interlocking hooks into flat materials for forming joints in conveyors and similar belts, will allow speeds never before possible - as high as 100 ft (30 m) per hour. Installing strong, smooth hook joints in materials up to 24 in (610 mm) wide and 3/8th in (10.3 mm) thick becomes a one-person job. Uniform lacing without damage to belt materials is assured. Recommended for manufacturers of conveyors, drier felts, farm machinery, and others, this unit sells from \$1,200 to \$2,700. WRITE: Richard E. Kelly, Clipper Belt Lacer Company,

Dept. CN, 974 Front Avenue, N.W.,
Grand Rapids, Michigan 49504 U.S.A.

*** LATE ARRIVAL ***

MACHINE FOR ALIGNING AND AERATING PAPERBOARD - This firm's "Jogger-Aerator" offers a means to wind, align, and rotate a load of paperboard in as little as 5 minutes. The machine uses a stream of high volume air which moves across the full length and width of the load, separating every sheet one by one. The sheets actually float on air while excess powder, paper chips, etc. are removed. Vibrating air bars quickly and perfectly align all sheets. Production expenses are lower, the company says, because manual repiling of paperboard is eliminated. Suggested end-users include paper mills, folding box plants, printing houses, etc. Price range is \$38,000 to \$59,800. Agents and/or distributors are sought.

WRITE: Joseph N. Giorgio, Woodward Research Company, Inc., Dept. CN, 160 Howard Avenue, Rochelle Park, New Jersey 07662 U.S.A.

FOOD DEHYDRATION UNIT PRE-SERVES FOOD

-- According to the company, the "Sunshine Valley Dehydrator" is a simple, practical, economical way to preserve fruit, vegetables, meat, fish, beans, nuts, and even yogurt. To operate the dehydrator, the user selects the proper temperature - low, gentle temperatures are possible for delicate foods - and the unit's 6 in (15 cm) fan blows heated air horizontally across the food trays. Made of tough polystyrene and reinforced metal, the unit is suggested for campers, hikers and anyone interested in uncomplicated, inexpensive food preservation. Priced at \$84.95. Distributors and agents are sought.

WRITE: Jim F. David, Sunshine Valley Sales Company, Dept. CN, 840 Hinckley Road, Suite 120, Burlingame, California 94010 U.S.A. (See photo below.)





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